JOURNAL
OF THE
AMERICAN VETERINARY MEDICAL ASSOCIATION

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Volume CXV NOVEMBER 1949 Number 872



An
Unmeasured
Reality—

THE WORLD-WIDE ATTACK ON ANIMAL ILLS

A prominent authority on human affairs (*Science News Letter*, Sept. 3, 1949) reminds the world of its debt to the veterinary service by pointing out how applied veterinary science "saves meat and milk and shoes and saddles and (for all the motor age) a great deal of transportation and farm power," not to mention that:

International coöperation, in fighting animal diseases, has become a "must do" in the face of famine-producing plagues and such constant perils as anthrax, tuberculosis, brucellosis, rabies, and a whole array of other threats to human health and industrial progress that yield only where veterinarians step in to control them.

THE FACT THAT THE WHOLE WORLD IS BEGINNING TO COMPREHEND THE FUNCTIONS OF APPLIED VETERINARY MEDICINE MUST BE QUITE A DISAPPOINTMENT TO THOSE WHO FLOUT THE VIRTUE OF COLLEGE-TRAINED GUARDIANS OF ANIMAL HEALTH.

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1. Blair, H. E.: North Am. Vet. *30*:306-9 (May) 1949
2. Enzie, F. D.: Proc. Helm. Soc. Wash. *14*:35-44 (Jan.) 1947
3. Craige, A. H. Jr., and Kleckner, A. L.: North Am. Vet. *27*:26-30 (Jan.) 1946

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AVMA ☆ Report

Veterinary Medical Activities

✦ President C. P. Zepp, Sr., attended the first annual (organization) meeting of the Canadian Veterinary Medical Association, at Winnipeg, Sept. 21-23, 1949, and presented official greetings to the new association on behalf of the AVMA.

★ ★ ★

✦ The October JOURNAL contained 176 pages and was the largest single issue ever published. It contained a full report of the 86th annual meeting in Detroit (with the exception of the Section Meetings, which are published in this issue), including the official proceedings and several papers which were delivered.

★ ★ ★

✦ The Board of Governors met at Columbus, Ohio, on Oct. 11-12, 1949, during the meeting of the U. S. Livestock Sanitary Association. By so doing, it was possible to transact the necessary business of the AVMA and simultaneously make contacts with members attending the annual meeting of the U.S.L.S.A.

★ ★ ★

✦ The AVMA Practitioners' Committee on Brucellosis met in Columbus on October 10 to formulate its opinions and to crystallize a plan of procedure. This afforded an opportunity to have facts well in hand previous to the meeting of the National Brucellosis Committee (October 11), the National Assembly of Chief Livestock Sanitary Officials, and the U.S.L.S.A.

The recommendations of the Practitioners' Committee were submitted as amendments to the 4-plan uniform program and were adopted.

★ ★ ★

✦ Dr. C. D. Van Houweling, Director of Professional Relations, attended the centennial meeting of the Indiana State Veterinary Medical Association at Indianapolis, September 26; the National Association of County Agricultural Agents at Denver, October 3-5; the South Dakota State Veterinary Medical Association at Sioux Falls, October 5; and the Eastern Iowa Veterinary Association at Cedar Rapids, October 20.

★ ★ ★

✦ The Ohio State Student Chapter was visited by the Board of Governors: Executive Board Chairman W. G. Brock, President C. P. Zepp, Sr., and President-elect W. M. Coffee. Each Board member spoke briefly. The student chapters at Iowa State and Kansas State were visited by Dr. Van Houweling.

★ ★ ★

✦ Executive Secretary J. G. Hardenbergh attended the meeting of the Board of Governors in Columbus, Ohio. Drs. Klussendorf and Van Houweling also attended, having travelled down to attend the meetings of the Practitioners' Committee on Brucellosis and the National Brucellosis Committee.

★ ★ ★

✦ Student chapters at Iowa State and at Kansas State were visited by Dr. Van Houweling, and Executive Board Chairman W. G. Brock spoke to members of the Ohio State Student Chapter while in Columbus.

★ ★ ★

✦ The Chicago Veterinary Medical Association devoted the entire program of the October meeting to a review of the Detroit AVMA Convention for the benefit of those members who had been unable to attend.

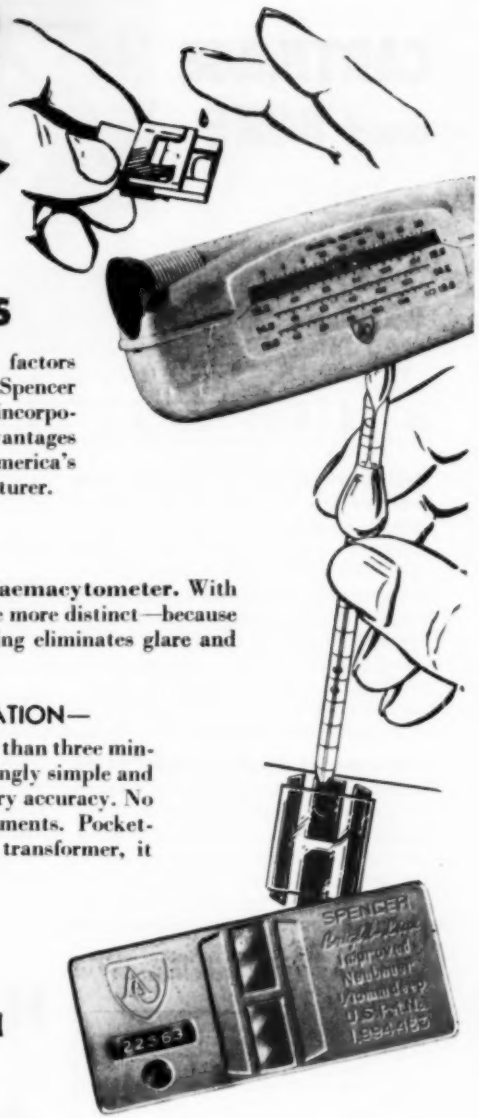
★ ★ ★

✦ Assistant Executive Secretary R. C. Klussendorf attended the Annual Conference for Veterinarians at Purdue University, Lafayette, Ind., October 5-7.

★ ★ ★

✦ The Committee Reports, in this issue of the JOURNAL, provide an opportunity to review what these several groups with specialized interests are thinking and doing. The Roster, which appeared in the October JOURNAL, lists current committee chairmen and members. They will welcome suggestions for work during the present fiscal year.

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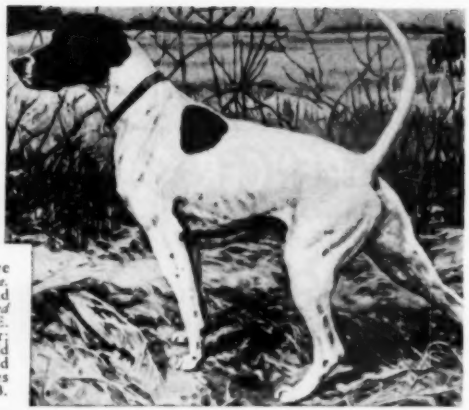
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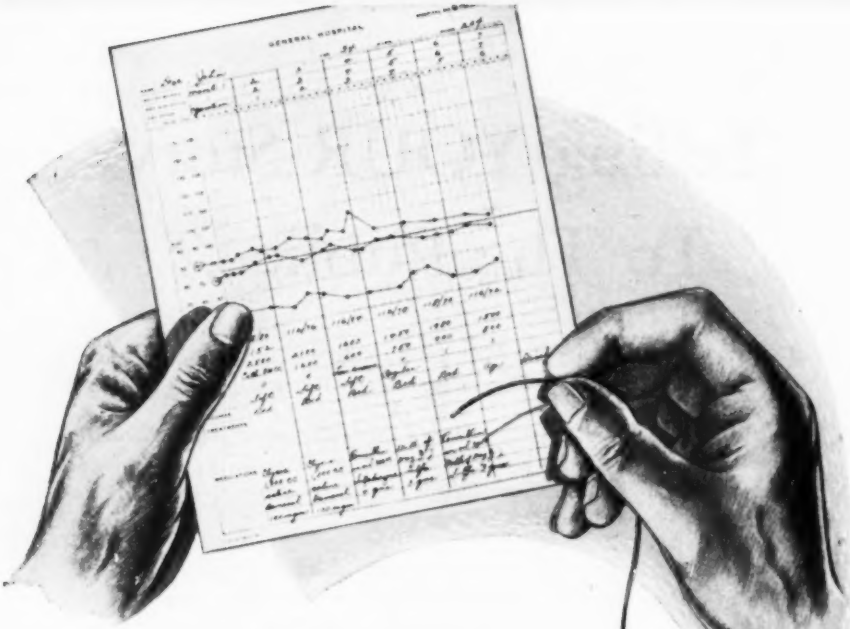
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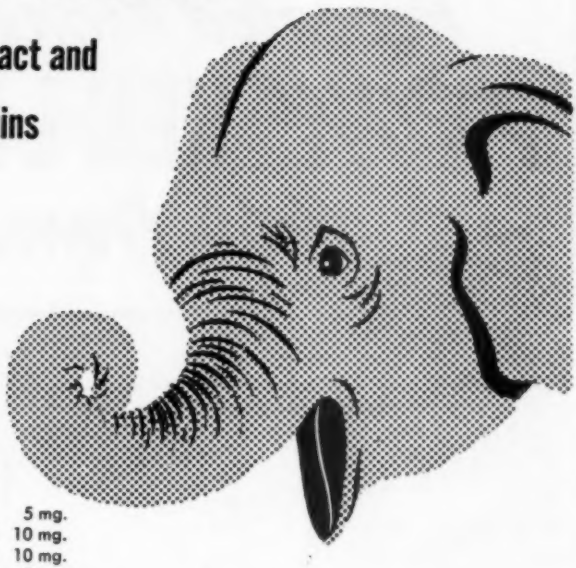
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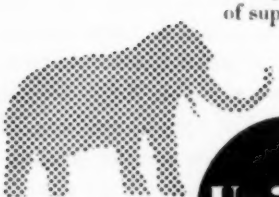
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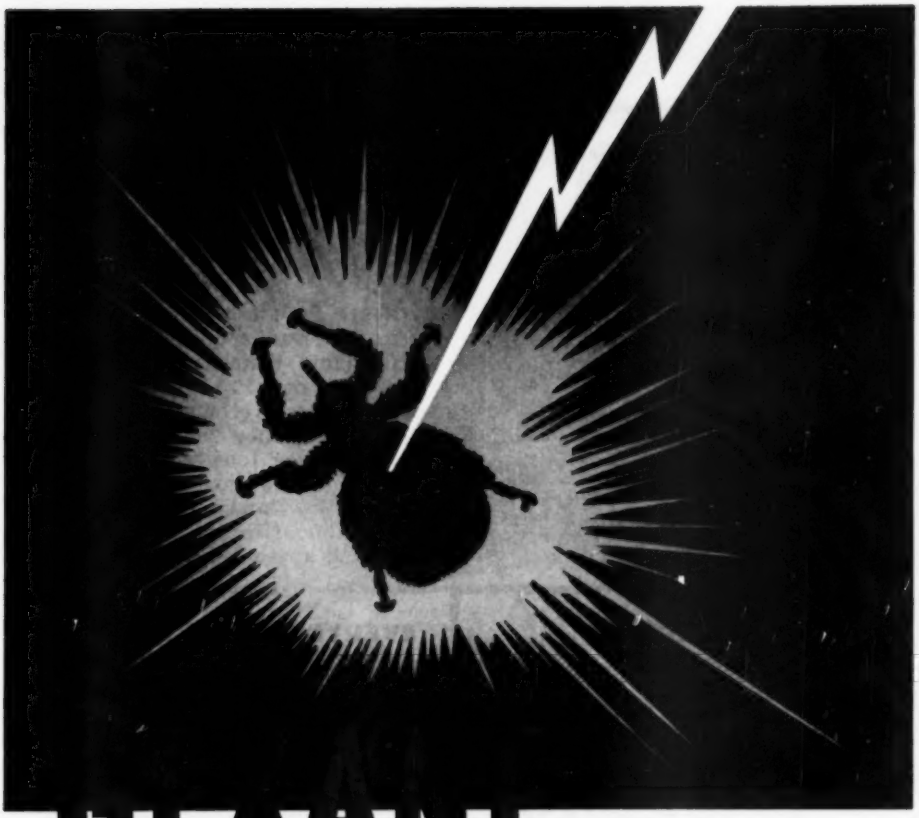
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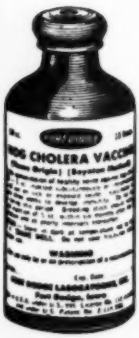
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Some Advancements in Veterinary Therapy

A. H. QUIN, D.V.M.

Kansas City, Missouri

THE SUBJECT allocated to me for presentation to you, "Some Advancements in Veterinary Therapy" has proved difficult in preparation because of the increasing complexity of contemporary veterinary therapy and the phenomenal diversity of methods, techniques, and products utilized daily in alleviating the diseases of animals.

As of today, and even more true of tomorrow, a score of ultratechnical sciences including biochemistry, immunology, mycology, pharmacology, and related specializations are contributing such a wealth of clinically-valuable information, that it is hard to keep abreast of even the most important reports applicable to veterinary practice. Exemplary of this ever-changing panorama of professional progress, we might, for examples, mention:

1) The refinements of surgical techniques with special emphasis on sterile operative procedures; the mastery of spinal, local, and intravenous anesthesia; and the reduction and handling of fractures by intramedullary bone pinning.

2) The development in insecticides ranging from DDT through benzene hexachloride, chlordane, methoxychlor, and several others—products which have given us workable control over many species of otherwise hard-to-handle ectoparasites.

3) The clinical application of sulfonamides and antibiotic agents.

It is but a few years since sulfonamides and antibiotic agents have become "part and parcel" of the practitioners' armamentarium. Yet, these agents have effected a truly phenomenal transformation in therapy—a transformation that has enabled clinicians to triumph over death in a long list of diseases that were, formerly, almost invariably fatal.

Presented before the General Session, Eighty-sixth Annual Meeting, American Veterinary Medical Association, Detroit, Mich., July 11-14, 1949.

Unfortunately, but in keeping with many historic precedents, abuses have been quick to fall into the footsteps of science. We are all witnesses to the dazzling array of penicillin ointments, bougies, sticks, suppositories, and similar "handy gadgets" openly advertised to farmers with the direct or implied claims that purchase and amateur application are a sure-shot short cut to control of all types of bovine mastitis. We view, with concern, segments of the feed industry that have jumped hip deep into the therapeutic field to the point that many befuddled livestock and poultry owners hardly know whether they are "drugging the feed or feeding the drug." Are we not also justified in our exasperation when commercial greed preaches substitution of the druggist's "Blue Book" for the diagnostic skill and therapeutic knowledge of the trained veterinarian?

But all of this is part of the changing American scene; so, taking a lesson from the immortal General Forrest of "Getting there fustest with the mostest," it behooves veterinarians to keep as nearly abreast as possible of all technical developments that increase their scope of services to their clientele. Hence, let us briefly review a few recent developments of interest.

THE SULFONAMIDES AND ANTIBIOTIC AGENTS

In further reference to sulfonamide and antibiotic therapy, let us not forget that these so-called "wonder drugs" are not stimulants, sedatives, nor nutrients; and they are distinctly not substitutes for good nursing and surgical drainage when indicated. The sulfonamides and antibiotic agents are, however, synergistic in action and there are few exceptions to the rule that, within the confines of bacteriostatic activity, it is always preferable to administer both the sul-

fonamide of choice and the antibiotic of choice, rather than either agent singly.

With both antibiotic agents and sulfonamides, subtherapeutic doses or maintenance of the therapeutic dosage pattern over too short a span may needlessly sacrifice the life of a patient by predisposing to the propagation of sulfonamide-fast or antibiotic-fast strains of pathogens, and by enhancing the risk of fatal relapses.

As a general rule, the minimum blood levels for sulfonamides must be maintained at over 5 mg./100 cc. of blood, while the optimum blood level should be approximately 0.075 unit of penicillin per cubic centimeter of blood (7.5/100 cc.), or a dilution of one part of penicillin to 22 million parts of blood. Thus, for full therapeutic effectiveness in animal patients, we plan a dose scale of from 1,500 to 2,000 units of penicillin per pound of body weight.

When using potassium procaine penicillin in oil with aluminum monostearate, it is well to remember that there is a distinct time lag between injection and establishment of optimum blood levels. For this reason, it is always good practice in emergency cases to administer a full therapeutic dose of water-soluble penicillin intravenously or intramuscularly at the same time the initial dose of the oil-monostearate penicillin is given.

There is a distinct trend in both human and veterinary medicine toward use of combined sulfonamides rather than a single sulfonamide drug. This trend is well backed by research, e.g., the reports of Lehr[1] and Frisk *et al.*[2] that mixtures of selective sulfonamides have the same solubility in solutions or in urine as a single compound. Combinations of two, three, or even more sulfonamide drugs given conjointly, either parenterally or by mouth, insure a broader range of bacteriostatic coverage, and with less risk of crystalluria and renal damage, than when a single sulfonamide is used.

RUMEN INGESTA TRANSFER

It is our belief that the veterinary clinicians of the future will take greater cognizance of the relationship of rumen function to health and disease of cattle and sheep. Scientists are fast proving that the bacterial and protozoan flora within the ruminal ingesta are directly related to the maintenance of normal metabolism.[3] Within the dark vault of the rumen, countless types of bacteria synthesize essential vitamins, break down carbohydrate cellulose, split proteins into precursor peptides of amino acids, and discharge other functions intricately related to the essential physiologic need of the ruminant.

For years, we have accepted the therapeutic values of blood transfusions. Is it not equally logical to consider that transfer of paunch contents from the rumen of a normal to that of a sick ruminant is well justified when symptoms indicate that such transfer may be of therapeutic value?

In keeping with this thought, we note a report by Pounden[4] that young calves in poor condition showed quick improvement when cuds of adult cows were given them perorally.

Among others, Coffee,[5] of Kentucky, and Bailey,[6] of Wisconsin, report favorable results following transfer of rumen ingesta to bovine subjects presenting symptoms of ruminal dysfunction. The same therapeutic approach may have application in equine practice, for in this species—as recently cited by Carroll, Goss, and Howell[7]—cecal and intestinal bacterial synthesis was inadequate in preventing clinical deficiency symptoms of horses kept on purified rations devoid of vitamin B complex.

RUMINANT BLOATING

While less spectacular than certain of the contagious diseases, bloating of cattle and sheep is responsible for tremendous losses annually. Clark and Quin,[8] of South Africa, in reporting *in vitro* experiments, postulate that turpentine and several other drugs used in treatment of bloat produce helpful results, not because they exert bactericidal or irritant action, but because they increase surface tension of the food mass within the rumen.

This principal of surface tension is well exemplified by the reaction that occurs when soapless washing powders are added to water and agitated. A great mass of foam results because surface tension is decreased and air is entrapped by a bubble film of the detergent.

A like reaction occurs when legumes and grasses of high moisture content are taken into the paunch of ruminants. Muscular contractions of the ruminal wall, together with bacterial and enzymatic fermentation, create a foam of carbon dioxide, methane, hydrogen sulfide, and other gases. Very often, as is shown when we tap these cases, the gas froth is homogeneously distributed throughout the food mass—a physical state featuring decreased surface tension.

Laboratory experiments revealed that the most efficient agent for increasing surface tension is a highly polymerized methyl silicone.

A stable suspension of polymerized methyl silicone was supplied to general practitioners in different sections of the country. It was suggested that bloat cases be treated

by either injecting the suspension directly into the dorsal vault of the rumen or by diluting the suspension with water and giving by mouth as a drench or by the stomach tube.

Reports on the treatment of 180 cases of cattle bloat by this method listed 140 recoveries[9]—a quite outstanding record when it is realized that all types of bloat, frothy and dry, primary and secondary, were so treated. Limited data also indicate that intracecal injection of methyl silicone is an equally effective treatment for cecal tympany of horses and mules.

Added advantages of this method are that methyl silicone does not damage or inhibit the bacterial flora of the rumen or interfere in any way with collateral medication.

EQUINE STRONGYLE CONTROL

A report by Dimock[10] indicates that horses can be kept free from strongyles and sclerostomas if fed 30 gr. of phenothiazine daily after individual worming. This is an important announcement, for constant reinfestation of horses and colts on larvae-infested pastures has been a difficult problem.

Currently, we are completing an experiment with 16 head of yearling Thoroughbreds, using 30 gr. of phenothiazine in a sweetened base on feed once daily. Strongyle egg counts at the start of the experiment ranged from 2,000 to 13,500 eggs per gram of feces. Twelve head were treated, and 4 were left untreated as controls.

Egg counts, taken three weeks later, showed an average 69 per cent reduction in the 12 treated yearlings and no change, or slight increases, in the egg counts of the 4 untreated controls. The experiment is being continued with periodic egg-count checks to determine whether prolonged daily dosing with the 30 gr. of phenothiazine will rid colts of blood worms without preliminary individual worming.

IRON CACODYLATE IN ANAPLASMOSIS

To date, we have no really effective treatment for anaplasmosis. On a pharmacologic basis, it would appear that iron cacodylate should have merit as an anaplasmacide and hematinic. With this in mind, a fully active solution of iron cacodylate in dextrose was supplied to two midwest research stations for studies of its value in treatment of clinical anaplasmosis. Fourteen head of splenectomized cattle, under 2 years old, were inoculated with blood containing *Anaplasma marginale*. Twelve head, also inoculated, were given no treatment and used as controls. All 26 head developed acute anaplasmosis.[11,12]

The end result was that none of the treated animals, given even larger and more frequent intravenous doses of iron cacodylate than might be considered maximum, showed any improvement in blood count over the untreated controls. Also, there was no greater decrease in number of anaplasma-infected red blood cells in the treated calves than in the controls.

This experiment is cited because it teaches the pointed lesson that no claims can be made for any drug until it has been subjected to direct observation of controlled experiments under field conditions.

ANTIHISTAMINES

Clinical reports on successful treatment of a variety of animal syndromes with antihistaminic drugs are accumulating rapidly. The primary indications are, of course, the frankly allergic diseases such as urticaria or nettle rash, allergic dermatitis, rhinitis, and ophthalmia.

Mosier[13] reports efficient results in treatment of bovine founder, and Obel and Schmiterlöw,[14] Veterinary Institute, Stockholm, Sweden, report almost specific results from antihistamine medication in equine pulmonary emphysema, or heaves. Cady,[15] of Nebraska, and others have cited that the antihistamines give exceptionally good response in treatment of the summer cattle disease known as mycotic stomatitis—an allergy due to molds on pasture grasses.

Antihistamines are powerful drugs, and the dosage should be calculated carefully on a basis of body weight. Parenteral antihistamine solutions usually induce a transient but quite severe systemic reaction. The severity of this reaction can be modified if the solution is given very slowly.

NEW ANTIBIOTICS

The most promising of the new antibiotic agents is aureomycin or duomycin. This drug has the distinct advantage of concentrating well in elimination through milk, and it has a wide range of bacteriostatic selectivity. It is given in a dose of about 25 mg. per pound of body weight, with 12 mg. per pound as a sustaining dose.

Aureomycin does not appear to be dangerously toxic, and may be of value in the treatment of staphylococcic mastitis.

Waksman and his associates, who developed streptomycin, have recently reported on neomycin, also apparently an antibiotic agent of considerable promise. New methods of refining bacitracin indicate that the drug may be better tolerated than in the past. To date, bacitracin has been used topically only, and particularly in metritis and some of the infections of body cavities that may be reached from the outside. Baci-

tracin, in its improved form, also is promising. It should have a place in the treatment of bovine pink-eye.

CONCLUSION

In this discussion, we have been able to touch on only a few high-lights of modern veterinary therapy. The closing statement can be made that never before in history have veterinarians rendered the livestock industry such high standards of economically profitable service. The bridge between research laboratories and clinical application is in good hands and the future of the well-posted, conscientious practitioner is, indeed, one of promise.

SUMMARY

Outstanding advances in veterinary therapy include refinements in surgical techniques, especially in asepsis; application of spinal, local, and intravenous anesthesia; improved insecticides; and utilization of sulfonamides and antibiotic agents.

The proper blood level of sulfonamides is above a minimum 5 mg./100 cc., while penicillin blood levels should approximate 0.075 units per cubic centimeter for optimum efficiency. The dosage necessary to achieve this is 1,500 to 2,000 units per pound of body weight. Emergency cases respond best to combined sulfonamides and penicillin, and a parenteral dose of water-soluble penicillin should precede injection of the slowly absorbed suspensions in wax and monostearate.

Of 180 cases of bovine tympany, 140 responded to intraruminal injections or peroral treatment with polymerized methyl silicone.

Twelve yearling Thoroughbreds showed a 69 per cent average decrease in strongyle egg counts in three weeks following a 30-gr. daily intake of phenothiazine.

Antihistamine drugs have given promising results in bovine and equine founder, urticaria, allergic dermatitis, mycotic stomatitis of cattle, and pulmonary emphysema of horses.

The premise is postulated that transfer of rumen ingesta from normal cows to cows with ruminal dysfunction has a place in therapy.

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This Is the Era of Conservation

Playing fast and loose and reckless with the sensible application of veterinary science is nothing less than rocking the boat of the present civilization. As never before within the memory of the living, seeing eyes and knowing minds are grievously perturbed over the world's food supply in the face of upswinging consumption. Numerous and voluminous press releases of the FAO, WHO, UNESCO, and other globe-wide agencies are not too encouraging to say the least. Consumption has caught up with production for the first time. The twain have met. Thus, the middle of this century goes into history as the start of a new era —the Era of Conservation.

As the Food and Agricultural Organization (FAO) stresses (*release*, June 16, 1949), "the world is producing more food than ever before but since there are more people to feed, the average consumption is lower than before the war when the average diet, by nutritional standards, was greatly inadequate."

Here, in a few words is the crux of the world's foremost problem to which veterinary medicine ought to be giving its undivided devotion.

SURGERY & OBSTETRICS
AND PROBLEMS OF BREEDING

Relation of Hormones to Lowered Fertility in Cattle

W. G. VENZKE, D.V.M., M.S., PH.D.

Columbus, Ohio

THE IMPORTANT problem of low fertility in dairy cattle has been accentuated by the rapid and widespread growth of the artificial insemination (AI) programs. Statistics from the records of the AI associations indicate that approximately one half of all the inseminations are infertile, thus emphasizing the problem of lowered fertility. In addition, lowered fertility is being recognized immediately in the individual animal and in herds by the dairyman in the breeding association programs, because better records are being maintained on the rate of conception.

This paper is prepared in the hope that it will indicate the possible role of some of the hormones in their relation to the problem of lowered fertility in cattle. It is important to remember that endocrine dysfunction is but one small factor in this extremely complex problem.

Hormones may be defined as complex organic compounds produced by glandular cells in one part of the body, absorbed directly into the vascular or lymphatic systems, and, thereby, carried to other body tissues where the structures, or the functions of specific cells, are either stimulated or inhibited. They produce their physiologic effect by direct, by indirect, and conditional action; by interaction with the nervous mechanism; and by regulating enzyme and catalytic action. These physiologic actions, in turn, are regulated or modified by such factors as environment, heredity, nutrition, and disease. Thus, it is extremely difficult to fully understand and properly interpret the complex role and importance of the endocrine system in lowered fertility. In addition, much of the literature published concerning the endocrine system and its relation to lowered fertility is based upon hypotheses and poorly controlled experiments. This emphasizes the urgent need for more research, the accumulation of more clinical data, and the proper interpretation placed upon its significance before a thorough understanding of the problem is realized.

From the College of Veterinary Medicine, The Ohio State University, Columbus.

Presented before the Section on Surgery and Obstetrics, Eighty-sixth Annual Meeting, American Veterinary Medical Association, Detroit, Mich., July 11-14, 1949.

PHYSIOLOGIC OBSERVATIONS

In order to attempt to understand the relationship of the endocrine system to lowered fertility, it is essential that several physiologic factors concerning the estrous cycle in the cow be recalled. In proestrus of the normal cycle, there is a definite period of dual causes and effects, in that regression of the corpus luteum and the development of a new ovarian follicle overlap each other.

The time normally necessary for an ovarian follicle to mature sufficiently to produce estrus is important in a consideration of the cycle, and in the treatment of some low fertility cases. In the cow, the usual time required is four to five days. This observation is supported by the fact that when the corpus luteum is extirpated manually, per rectum, the cow will usually come into estrus in about four or five days.

The length of estrus in the cow varies and is dependent upon several possible factors. Normally, the period is relatively short, averaging approximately thirteen to fourteen hours. This short estrous period apparently does not depend entirely upon the anterior hypophysis. There is evidence to support the theory that the length of the period is at least partially dependent upon the length of time that the central nervous system is responsive to estrogens. If threshold amounts of estrogens, slightly more than the amount necessary to induce estrus, are injected daily into ovariectomized cows, the ensuing estrus produced is not continuous, but ceases at the end of the normal period, irrespective of continued injections.[1] Another factor related to the control of the length of the period is the activity of the anterior lobe of the hypophysis. The duration of estrus appears to be directly related to the follicle-stimulating hormone (FSH) content. The greater the FSH content per unit weight of hypophysial tissue, the

greater the average length of the estrous period. The FSH content of the bovine hypophysis is low; the luteinizing hormone (LH) content predominates. As a result, the threshold amount of estrogens necessary to produce estrus in the cow follows a similar pattern and is approximately 600 rat units.[2]

As a possible consequence of these phenomena, it is usually observed that ovulation in the cow follows estrus in approximately thirteen to fifteen hours. Since the average threshold amount of estrogens is very low, it is assumed that this level is reached early during the development of the ovarian follicle. Then as a result of this, the refractory period in the central nervous system commences before the developing follicle has sufficiently matured. Therefore, an interval results in which the symptoms of estrus are not manifest, before ovulation actually occurs.

The length of the functional life of the corpus luteum in the absence of pregnancy is approximately sixteen to eighteen days. This is a relatively long period when compared with that of most mammals, and appears to be correlated with the lactogenic or luteotrophic hormone content of the anterior hypophysis. The lactogenic hormone content of the hypophysis of the bovine animal is very high. The response of the uterine glands to the corpus luteum hormone, progesterone, in the cow is moderate.

Whenever there is interference with follicular development, ovulation, migration of the ovum to the uterus, fertilization, or implantation of the fertilized ovum, reproductive failure results. The etiologic factor may be an endocrine imbalance, mechanical obstruction, or a disease process. When the normal reproductive cycle presents irregularities in the absence of pregnancy or clinically recognizable pathology, the clinician must investigate for symptoms of endocrine imbalance.

ANESTRUS

Anestrus is frequently observed in highly conditioned heifers, in heifers and young cows during the late winter and early spring, and in those animals in a state of low nutrition. The ovaries in such animals are commonly found to lapse into a state where no follicular development occurs. They are usually small and hard. This condition may well result from a decline in the anterior hypophysial production of FSH to a greater degree than that of the LH. The end result is a pituitary gonadotrophin-ovarian imbalance.

Anestrus may respond to several types of hormone therapy. Many cases respond to the intravenous injection of 2,000 to 3,000 international units (IU) of human chorionic gonadotrophin, administered in divided doses at a 48-hour interval. It is well to massage the genital tract per rectum at each injection. The subcutaneous injection of 2,000 to 3,000 IU of pregnant mares' serum (PMS) is occasionally effective in stimulating follicular growth and ovulation.

If PMS is employed in the treatment of anestrus, it should not be injected when a corpus luteum exists in the ovary, or in excessive dosage, since ovarian cysts may develop. The injection of PMS following the manual extirpation of the corpus luteum may result in multiple ovulations.[3] Little practical application can be made of PMS in the treatment of lowered fertility in cattle, except in anestrus when no corpus exists in the ovaries.

A subcutaneous injection of 40 to 50 mg. of natural estrogens will frequently produce estrous changes in the genital tract, without the animal exhibiting symptoms of estrus and without ovulation. If a small follicle is present in either ovary at the time of injection, these animals may ovulate four or five days after the appearance of estrous changes in the genital tract and then return to a normal cycle. It is necessary that a period of four weeks be allowed to elapse before retreatment is instituted. However, before hormone therapy is repeated, a thorough evaluation of the status of the genital tract should be made.

In anestrous animals where the nutritional state is low, or in animals where anestrus has existed for a long period and the ovaries are very atrophic, the injection of large doses of gonadotrophin may fail to grow a follicle. The treatment fails in these cases, primarily because the factors necessary for tissue growth are not present in the body in sufficient amounts.

A milder degree of anestrus occurs in some animals and is characterized by the ripening of the ovarian follicle and ovulation without the symptoms of estrus. This condition is recognized as the so-called "silent heat." The etiology for this condition is not definitely known, but evidence points to a pituitary gonadotrophin-ovarian hormone imbalance. The basis for this reasoning develops from the fact that the bovine hypophysis is high in LH content, and that when the anterior hypophysial lobe activity is reduced, the FSH content diminishes at a more rapid rate than does the luteinizing hormone. As a result, there develops a pituitary gonadotrophin-estrogen-progesterone imbalance in which the expression of the symptoms of estrus do not occur.

The treatment of "silent heat" cases may be conducted in several ways. The manual extirpation of the corpus luteum per rectum reduces the immediate excess progesterone level with a resultant appearance of estrus

in four to five days. The intramuscular injection of 10 mg. of natural estrogens (di-ovocylin, for example) on the sixteenth or seventeenth day of the cycle will usually initiate symptoms of normal estrus. Most animals so treated do not conceive from the service at the artificially induced estrous period and, therefore, should be bred at a subsequent estrus.

OVARIAN FOLLICULAR CYSTS

Multiple ovarian follicular cysts in one or both ovaries that do not ovulate are frequently observed in high-producing dairy cattle and in some well-conditioned beef cattle. The estrous cycle is irregular and conception does not occur. Many of these animals become bullish in appearance and attitude. Such individuals are recognized as nymphomaniacs, since they are in constant estrus, bellow considerably, and attempt to mount any animal they contact. The etiology of these conditions is not definitely known. Perhaps, in cases of multiple ovarian follicular cysts, the pituitary gonadotrophin balance is on the side of FSH and increased ovarian estrogen. This type of imbalance is corrected only after the anterior hypophysis regains its full activity.

In the treatment of these cases, it is necessary to increase the pituitary LH and luteotrophin level, with a resultant increase in the corpus luteum hormone, progesterone, output. Unfractionated, dried sheep pituitary extract,[4] and human chorionic gonadotrophin, are exceptionally useful, provided no serious pathology exists, other than the multiple ovarian follicular cysts.

Treatment with either of these preparations is best instituted by first manually rupturing the follicular cysts to reduce the immediate excess estrogen output. At the time the cysts are ruptured, inject intravenously 65 mg. (equivalent to 1 to 1.29 Gm. of sheep pituitary) dried sheep pituitary or 10 provisional rat units[5] (Vetrophin-Abbott Laboratories) in 5 cc. of distilled water. If the symptoms of nymphomania have not ceased in four weeks after the treatment, a second injection may be necessary. Usually, when the treatment must be repeated, some tubal or uterine pathology exists. If human chorionic gonadotrophin (follutein (Squibb) for example) is used, inject intravenously 5,000 I.U., and repeat the dose in approximately forty-eight hours. Retreatment with human chorionic gonadotrophin and rupture of the ovarian follicular cysts should not be repeated under four weeks. It is advisable not to breed cows that have been treated for multiple ovarian cysts and nymphomania symptoms until after the second normal estrus. There is danger of a twin calving resulting from breeding at the first estrus following treatment.

RETAINED CORPUS LUTEUM

Frequently, in high-producing dairy cattle, lowered fertility is attributed to a retained corpus luteum or failure of regression of the corpus luteum with resultant stasis of ovarian activity. In the diagnosis and treatment of this condition, it is important that the ovarian cycle be followed sufficiently to determine that silent estrus does not occur. If a thorough physical examination is made of the retained corpus luteum case, it will usually be found that some pathologic etiology exists. The retained corpus luteum serves as a protective mechanism, since frequently there is an infection of the urogenital, digestive, cardiac, or respiratory system. Also, in such cases, a urine test for acetonemia is definitely, or moderately, positive.

Treatment of the retained corpus luteum requires that the primary condition be corrected before the estrous cycle is initiated. When the animal is diagnosed clinically healthy, the cycle can be initiated by manual extirpation of the corpus luteum. The intravenous use of 1,000 to 2,000 units of a follicle-stimulating hormone at the time of extirpation of the corpus luteum is useful and may be repeated in forty-eight hours.[6] Natural estrogens (50 mg. injected subcutaneously) have also been found useful. Best results are obtained by breeding the female at the second normal estrus following treatment.

REPEATED SERVICE

Perhaps one of the problems most costly to the dairy farmer results from those cows that show fairly regular estrous cycles, but either fail to conceive or conceive only after repeated service. These cases do not respond well to hormone therapy. Some may respond to the intravenous injection of 2,500 I.U. of human gonadotrophin on the day of service and a repeated dose in forty-eight hours. The use of estrogens to treat such cases in a similar manner is not recommended, since estrogens, if injected into a cow in estrus just prior to breeding, may lock the fertilized ovum in the oviduct, preventing its migration into the uterus.

When a cow fails to conceive following repeated service, it is essential that an accurate record be maintained on the reproductive cycle. The normal cycle is approximately twenty-one days. Abnormal cycles may extend to 24, 26, or 30 days. In such cases, a great percentage of early degeneration of the fertilized egg accounts for the low fertility rate in both AI and natural

matings. Hammond[7] has found that fertilization occurs in 90 per cent of the cases, but that early degeneration of the developing egg occurs just prior to attachment. A recent study by Tanabe and Casida,[8] covering 104 cows that had been bred from 4 to 13 times without conceiving, showed that the percentage of genitally normal cows having fertilized ova when slaughtered at three days after breeding was 66.1, but at 34 days, the percentage having normal embryos had dropped to 23.1, for an embryonic death rate of 65.1 per cent. These observations may account for the poor results with hormone therapy in such cases. The etiologic factors responsible for this condition remain obscure.

Retained Placenta

Retained placenta and accompanying metritis frequently result in lowered fertility. Hormone therapy has been employed in the treatment of retained placenta. The results have been varied and difficult to interpret, since most of the reports do not include the number of services required for conception following treatment of the condition. The data concerning the effectiveness of the hormonal therapy in the treatment would be more valuable if conception rates were determined, instead of basing its value entirely upon the actual placenta expulsion.

In the hormone treatment of retained placenta, estrogens are usually combined with the oxytocic factor from the posterior lobe of the hypophysis, pitocin. Inject, intramuscularly, 50 mg. of natural or synthetic estrogens and follow this in eight to twenty-four hours with a subcutaneous or intravenous injection of 4 to 6 cc. of pitocin. This combination of hormones appears to cause a stronger contraction of the uterine musculature than does the posterior hypophysis oxytocic factor or estrogens alone. The results are not encouraging as reported by Moore[9] and others.[10] In clinical practice, the above treatment is of greatest value in the retained placenta case in which the cervix has contracted.

Metritis

Estrogens are very effective in the treatment of acute pyometra cases in which the primary object is to save the life of the cow. An intramuscular injection of 50 mg. of estrogen, followed by 4 to 6 cc. of pitocin twenty-four to forty-eight hours after the estrogen injection, is highly recommended. It is essential that these cases receive supportive treatment in the form of 500 cc. of 50 per cent dextrose for two days, to be followed by 5 per cent dextrose intravenously until evidence of acetonemia disappears. In addition, antibiotic agents or sulfonamides (penicillin 900,000 units or sulfamerazine 1 gr./lb. of body weight) are administered over a period of forty-eight hours to control the infection. Also, nux vomica tends to stimulate the appetite. Massage of the uterus every other day facilitates the discharge of the uterine exudate. If the case is presented for treatment within a week or ten days after the first symptoms of metritis are observed by the owner, the prognosis is usually good.

Usually, a second treatment is required in chronic metritis. This consists of a 30-mg. dose of estrogens intramuscularly, followed in two days by an intramuscular injection of 3 cc. of pitocin. If the breeding efficiency of the cow with pyometra is to be increased, it appears that estrogens, plus the proper supportive measures, produce the most satisfactory results. Similar encouraging results have been reported.[11]

Mummified Fetus

Occasionally, the presence of a mummified fetus is responsible for sterility or lowered fertility in the cow. Expulsion of the mummified fetus following the use of estrogens has been reported.[12,13]

Before hormone therapy is instituted in these cases, it is essential that the size of the fetus be determined, and that the expulsion per vagina is possible. If the fetus is too large, cesarean section is indicated. If the fetus is small, 50 mg. of estrogens is injected intramuscularly and followed in twelve to twenty-four hours with a subcutaneous or intravenous injection of 3 to 6 cc. of pitocin. Pitocin aids in producing a stronger contraction of the uterine musculature.

Lowered Fertility in Bulls

Extensive experimental work with hormone therapy in the treatment of lowered fertility in bulls has not been conducted. However, some observations are worthy of mention. The bull with low fertility usually lacks sex drive, or he produces spermatozoa incapable of fertilizing ova.

The androgenic hormone, testosterone, has as one of its physiologic functions the maintenance of the sex drive or libido. Usually, the bulls that lack libido, provided they have not been excessively employed in service, are 6 or more years of age, sluggish, and lethargic. The semen sample from such cases frequently shows that a large percentage of the spermatozoa are dead. Many of these cases appear to have a hormone imbalance between the hypophysis (LH), the thyroid (thyroxine), and the testis (androgen). Which of these three endocrine glands are primarily responsible for the imbalance and reduced fertility is not known. Theoretically, it appears possible that the

thyroid glands could influence reproduction by way of a specific stimulating influence upon the hypophysis, which in turn affects the testis. The liberation of the FSH and LH from the hypophysis may affect the germinal and the interstitial tissue, respectively. In addition, the thyroid gland, when stimulated, produces a calorigenic effect upon all body cells.

Following this reasoning, a number of bulls complying with the above symptoms have been treated with moderate success. These animals were administered, intramuscularly, 10,000 I.U. of human chorionic gonadotrophin and this dosage repeated in two weeks. Combined with this hormone therapy was the feeding of a synthetic thyroprotein. The thyroprotein was an iodinated casein containing 3 per cent or more of thyroxine. The dosage was 1 Gm. daily per 100 lb. of body weight and continued for one month. Libido and fertility has improved in these selected cases.

Gonadotrophins have been employed in those bulls producing semen with a low spermatazoa count and in those showing aspermia. To date, no success has been attained in the treatment of aspermia with gonadotrophins. In some cases, human chorionic gonadotrophin was injected intramuscularly in doses of 10,000 I.U. at two-week intervals and produced some success. Some reports in the literature indicate a degree of success in such cases from two injections of 1,000 rat units at a four-day interval.[14] The reports by Salisbury,[15,16] show that if a bull is fertile, the number of spermatozoa per insemination may be reduced from 500 million to 10 million without decreasing the fertility rate. These studies would indicate that the cause of lowered fertility in a bull producing semen low in spermatozoa concentration is more complex than the low number of spermatozoa present. The factors responsible for the low numbers are perhaps, also, the cause for lowered fertility and remain unknown. Perhaps, an endocrine imbalance is the etiologic factor.

Other preparations have been used in attempting to stimulate slow breeding bulls. The use of pregnant mares' serum in such cases is not very successful.[17] Some reports indicate favorable temporary results with 100 mg. of testosterone.[18] Our results, to date, with the use of testosterone, even in larger dosage, have been very disappointing. Thyroprotein may prove to be successful in the treatment of impotence and lowered fertility, in those cases where hypothyroidism is the etiologic factor.[19]

Generally speaking, hormone therapy for the treatment of lowered fertility in the bull has been disappointing. The best therapeutic agents appear to be plenty of sunshine and new grass.

SUMMARY

There is a definite relationship between the endocrine system and lowered fertility. As a result, hormone therapy is gradually finding a more important place in veterinary practice. Clinical data on hormone therapy in the treatment of reproductive disorders in cattle is urgently needed. It is especially important that proper controls be established with the treated animals. More information is needed on the proper doses of the various preparations used in the treatment of lowered fertility. In the bull, the treatment of lowered fertility remains unsolved, for all practical purposes. Hormone therapy in cattle is most effective if the cases are properly selected and diagnosed before therapy is initiated.

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Dimethylberbeerine Hydrochloride

Berbeerine, a new drug used by veterinarians in the Argentine (*Revista del Centro de Estudiantes de Medicine Veterinaria*, 1948) to temporarily disable large animals about to be surgically restrained, has a transient curare-like action (curarization) which disposes of the violent opposition to casting, tying, and positioning large powerful animals for a surgical operation.

Dimethylberbeerine hydrochloride is a water-soluble powder given intravenously in solution. The dose of an approximately 1 per cent solution is 0.2 to 0.3 cc. per kilogram of body weight. The effect is immediate as a rule. The treated animal is cast, tied, operated upon without straining, and is up in twenty to thirty minutes as if nothing had happened. For the short operations for which profound general anesthesia would not be justified, and as an adjunct to local anesthesia, this drug has no peer, the author declares.

"Rigid Os".—Although the cause of cervical rigidity at the time of parturition is not known, it is supposedly associated with endocrine derangement, and interesting results are reported from large intravenous doses of diethylstilbestrol.

Vaginal Fibrosarcoma Responds to Stilbestrol.—A cow, 18 months old, suffered from a vaginal tumor which was diagnosed as a fibrosarcoma. After surgical removal, the growth recurred, involving, and showing through, the vulva. Considered a nonoperable cancer, a 1-mg. pellet of diethylstilbestrol was implanted in the cow's neck and results awaited. There was marked recession of the growth in three months, and in five months it had shrunk to a small pedunculated growth that was easily removed with the ecraseur. In fifteen months, she gave birth to a calf and her genital path was normal.—*Vet. Rec., abstr. in Rev. Méd. Vét., May, 1949.*

Gestation rations are important in promoting survival of pigs and adequate lactation for normal growth.

Breech Presentation of Twin Calves

Dr. George P. Broussau of New Iberia, La., writes in a letter to us, dated July 5, 1949:

> Yesterday, I delivered twin Holstein-Freisian calves. Both calves had complete retention of posterior limbs, and were breech presentations. Out of curiosity, I would like to know approximately how often this happens in the bovine species. Would one in half a million be an exaggeration?

There was no information on this probability in the literature examined.—ED.

An Experience with Elastration

An embarrassing experience, following the use of the elastrator for docking lambs, is reported in a very few words—The lambs died of tetanus. A study of the reason for this result, and the manner of its occurrence, has led me to the following conclusion: Because there is no wool on the ventral surface of the tail, the rubber band cuts more rapidly from the bottom than from the woolly dorsal surface. This produces a crease or groove immediately distal to the anus—an ideal trap for fecal matter bearing tetanus organisms. The congested or necrotic tissue posterior to the rubber band provides an excellent medium for anaërobic growth.

Whether the theory is right or wrong, the lambs died of tetanus.—*M. Mahoney, D.V.M., Petaluma, Calif.*

Elastration could not be recommended as a substitute for surgery in castrating and docking lambs in Australia, except under special circumstances. No material advantage was shown, and slowness of operating, longer healing time, and greater expense were mentioned as disadvantages in the *Livestock Diseases Report*, of March 31, 1949 (Sydney, Australia).

Traumatic Gastritis

Early diagnosis of traumatic gastritis due to foreign metallic objects is important. Most cases evince a respiratory grunt upon percussion over the reticulum. This can be detected most readily by using a stethoscope and placing it directly over the trachea.—*A. B. Christian, D.V.M., North Carolina.*

Growth, livability, egg production, hatchability, and fertility were not improved by extended feeding (24 weeks) of either pressed or extracted wheat germ oil to hens in studies at the Ontario Agricultural College.

CLINICAL DATA

Clinical Notes

The transfer of rumen content from a normal cow at the slaughterhouse to chronic bloaters often corrects this condition.—*C. O. Petry, D.V.M., Indiana.*

Rabies can not be cured, but it can be prevented, says L. R. Davenport, D.V.M. (*Illinois Health Messenger*, 21, June 1, 1949). "Protect your dog and you protect yourself, your family, and your community," he concludes.

Sulfonamide Toxicity.—The degree of toxicity resulting from sulfonamide therapy varies with the rate of absorption, the rate of elimination, and the degree of dehydration present in the patient.—*F. Thorp, Jr., D.V.M. Michigan.*

Posterior instability and paralysis are commonly seen as early symptoms of vitamin A deficiency. This is frequently complicated by a simultaneous deficiency of vitamin D and/or calcium. *Lyman Peck, Chicago.*

U.S. Public Health Service studies have produced satisfactory evidence that annual vaccination of dogs is an essential means of controlling rabies and should be encouraged to augment other measures, such as licensing, quarantine, and the elimination of strays.—*Steele and Tierkel, Public Health Reports, June 24, 1949.*

The venom of the toad (*Bufo bufo*), whose hemostatic action is comparable to that of adrenalin, ephedrine, ergotine, *et al.*, gave important results in a series of controlled trials on animals affected with various hemorrhagic conditions. Rossardet and Cazabat (*Rec. Méd. Vét.*, May, 1949) demonstrated its value in accidental bleeding, hematurea, hemorrhagic cystitis, and various experimentally produced hemorrhages in goats and cattle. Toad venom contracts blood vessels and nonstriated muscle, increases fibrogen, gives general tone to the body, and has a durable action. It is recommended as a valuable addition to the veterinarian's medicinal agents.

A pig that dies at weaning time has wasted 260 lb. of feed, besides loss of time, labor, and equipment on the farm.—*J. Muir, M.S., Washington State College.*

Mixing of hydrated lime with deep litter apparently does not afford more protection against cecal coccidiosis than deep litter without lime.—*Dr. F. R. Koutz, Poult. Sci., Nov.*, 1949.

That goats are highly susceptible to carbon monoxide poisoning seems to be borne out by the number which die while being hauled in the back seat of an automobile.—*Dairy Goat J., March*, 1949.

Health is the most important factor in hog production, says J. Muir in "Making Pigs Pay" (*Exten. Bull.* 390, State College of Washington). Hogs are subject to more parasites, diseases, and nutritional ailments than any other kind of livestock, he reports.

The quantitative hookworm diagnosis by the egg count on fecal smears is pronounced as reliable as the dilution method by Paul C. Beaver (*J. Parasitol.*, Apr., 1949) if sufficient quantity of fecal material is used. The counts vary but little from day to day, and each egg roughly represents 10 mature hookworms (*Necator americanus*).

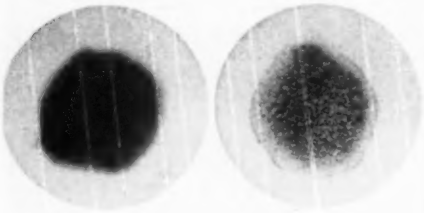
Cows and heifers infected with, or exposed to, trichomoniasis may be bred after three heat periods have been skipped, with an expectation of 85 per cent normal calvings. As protection for the herd sire, artificial insemination is recommended.—*B. B. Morgan, Ph.D., Wisconsin.*

Acute Canine Constipation

When constipation in dogs is not relieved by enemas and the usual laxatives, administer nembutal to relax the colon. Stop just short of the degree of anesthesia necessary for surgery, then pass the stomach tube, and administer 3 oz. of a mixture of equal parts of castor oil and mineral oil.—*P. J. Meginnis, D.V.M., Illinois.*

A Rapid Whole Blood Plate Test for the Diagnosis of Newcastle Disease

The hemagglutination phenomenon was first observed by Hirst[2] with influenza virus and chicken red blood cells, and was later applied to the virus of Newcastle disease (avian pneumoencephalitis) by Burnet.[1] The procedure originally presented by Hirst has since been modified by Lush[4] and Salk.[5] The test is now being used in almost all the poultry disease diagnosis laboratories for the routine diagnosis of Newcastle disease.



A B

Fig. 1—A rapid, whole blood hemagglutination-inhibition test for Newcastle disease: (A) positive; (B) negative.

Recently, Luginbuhl and Jungherr[3] have described a rapid serum plate hemagglutination-inhibition test for the demonstration of Newcastle disease antibodies in avian and human serums.

The following report describes the use of a simple whole blood test for the diagnosis of Newcastle disease. This test is simple to perform, is easily interpreted in two to five minutes, and it is reliable for the diagnosis of Newcastle disease. This test, like the rapid, whole blood agglutination test for pullorum disease, can be readily performed in the field and may be used as a screening test. Large numbers of chickens can be tested in a short time.

Materials and Methods.—The plate antigen used in the test is prepared as follows:

Newcastle virus. (Pooled allantoic and amnionic fluids) with a titer of 1,000 or above	25 cc.
Sodium citrate sol. 25 per cent	1 cc.
Physiologic saline	74 cc.

Technique.—The test is set up on a clean ruled glass plate or, preferably, a white opaque glass plate. Newcastle virus antigen (0.1 cc.) is placed on the plate. The wing vein of the chicken or turkey to be tested is punctured with a pullorum bleeding needle and a wire loopful (0.02 cc.) of blood is taken and is mixed well with the virus antigen already placed on the plate. The plate is rotated to expedite the reaction.

Results.—The results are read in two to five minutes. The blood of a bird which has no antibodies against Newcastle disease virus shows characteristic hemagglutination, while in blood of a positive bird, because of inhibition, no such agglutination is seen (fig. 1). Positive and negative birds are easily detected by this test. Birds having low hemagglutination-inhibition titer present a problem in interpreting the results of the test. From the results of testing over 200 birds, it appears that this test will prove to be of considerable practical value.—*S. L. Zargar, M.S., G.B.V.C., and B. S. Pomeroy, D.V.M., Ph.D., Division of Veterinary Medicine, University of Minnesota, University Farm, St. Paul 1, Minn.*

Paper No. 2502 Scientific Journal Series, Minnesota Agricultural Experiment Station, St. Paul.

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Better to Sterilize Instruments Beyond Question

A hotly contested action against a physician charged by the plaintiff of having failed to sterilize his instruments before making a cystoscopic examination, which was unfortunately followed by an acute urinary tract infection, was decided against the physician by the Appellate Court of California. One judge dissented on the ground that infection is an insidious thing that might have been caused by other means, despite the use of sterilized instruments. The jury supported the alleged negligence, however. (Legal Section, *J.Am.M.A.*, Aug. 27, 1949.)

The case is brought up here as a lesson on the sterilization of instruments—beyond question of doubt—before operating on an animal.

Report of Poisoning Two Dogs with 1080 Rat Poison (Sodium Fluoroacetate)

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Ocala, Florida

IN APRIL and May of 1948, several dogs from one neighborhood in Ocala were presented to our clinic with symptoms of what appeared to be 1080 poisoning. Previously, we had an opportunity to observe a dog known to have had this poison. This chemical was being used extensively in the city and county to poison rats at that time. To satisfy ourselves and the local health officers, under whose direction the 1080 was being used, we thought it desirable to definitely establish the chain of symptoms of 1080 poisoning by giving it to dogs.

The animals used were furnished by the city dog pound and were dogs of mixed breed and apparently healthy. The stomach of the first dog used was thought to be empty but was found on autopsy to have contained food. Believing that this stomach content might have slowed the action of the chemical, it was decided to use a second dog from which we had withheld food for thirty-six hours. Case 1 was a dog estimated to weigh 40 lb. Eight cubic centimeters of a solution furnished by the county health officer was administered. This solution was calculated to furnish 28 mg. of sodium fluoroacetate in the 8 cc. given. This amount was mixed with 2 oz. of hamburger and fed to the dog at 4:44 p.m., May 11, 1948. At 5:12 p.m., the dog showed a mild attack of hiccoughs and was given a bowl of water to drink. At 7:30 p.m., a semiliquid stool was passed. At 7:40 p.m., a watery stool was passed. At 8:00 p.m., the heart beat was accelerated to approximately twice its normal rate. Respiration was accelerated. At 8:04 p.m., the dog began to yelp as if in extreme pain, running around the pen. After several trips around the pen, it fell and had a hard convulsion. Tetanic spasms were evident, but no hypersensitiveness; relaxation was complete in one minute. First attempts to get back on its feet were difficult, but finally it regained its balance and started to race around the pen. The pupils were dilated, the dog was panting, and evidence of pain was present; however it was not as pronounced as at first. At 8:10 p.m., a second convulsion occurred, manifested by champing of the jaws, opisthotonos, and a running-like movement of the legs. This lasted one-half minute. The dog never definitely regained its equilibrium, and two minutes after the last convulsion, there was another of the same type. Four minutes after the last convulsion there was another, tetanic in nature. In one-half minute, relaxation was complete. Two and one-half minutes later, there was another tetanic-type convulsion, and at 8:20 respiration stopped; heart action stopped at 8:21. The only gross postmortem finding was an acute gastritis. There was some ingesta in the stomach. No other examinations were made.

Case 2 was a dog estimated to weigh 30 lb., and was of a mixed breed and apparently healthy; it had been starved for thirty-six hours. The same amount as given case 1 was used: 8 cc. of sodium fluoroacetate containing 28 mg. of the chemical given via the stomach tube. This was administered at 4:03 p.m., May 27, 1948. At 5:04 p.m., the dog began yelping as if in acute pain and made one short dash around the pen. He immediately went into a convulsion which was characterized by falling on side, a running-like movement of the legs, and a champing of the jaws; this also was accompanied by yelping. He relaxed at 5:09 p.m. Another convulsion followed immediately. The dog was almost relaxed at 5:11 p.m., when another convulsion developed that was of tetanic nature with opisthotonos. This lasted two minutes, followed by another with the same manifestations. Respiration and heart action were both greatly accelerated and the pupils dilated. Relaxation and convulsions at one- to two-minute intervals lasted to 5:17 p.m., when respiration ceased. The heart continued to beat for ten seconds after respiration ceased. The dog was dead at 5:18 p.m. The only gross postmortem finding was an acute gastritis. There was a small amount of fluid in the stomach.

It was two hours and fifty-six minutes in case 1 before the first symptom of poisoning was noticed, which was a loose bowel movement. The first convulsion appeared three hours and twenty minutes after the poison was given. Seventeen minutes after the first convulsion the dog died. It was three hours and thirty-seven minutes after the poison was given before the dog died.

It was one hour and one minute in case 2 before the first symptom of poisoning was noticed which was yelping as if in pain, followed immediately by convulsions. Thirteen

minutes after the first convulsion, this dog died. It was one hour and fifteen minutes after the poison was given before the dog died.

From these observations and the cases brought to our clinic, we consider the following symptoms to be characteristic of 1080 poisoning: extreme pain manifested by running and barking, convulsions of the tetanic type with opisthotonos. Death follows first symptoms in thirteen to thirty minutes.

We have had 2 cases to recover from 1080 poisoning, which in our opinion received only a very small amount of the poison. Our treatment was deep anesthesia, followed with infusions of 5 per cent dextrose in Ringers solution. Anesthesia was given as indicated to prevent convulsions. It was necessary to keep the anesthesia deep enough to prevent convulsions from twenty-four to seventy-two hours. We used pentobarbital sodium intravenously for anesthesia.

The health department has discontinued the use of 1080 in our county.

Veterinary Public Health*

The veterinary profession has been an adjunct of agriculture, but it must increase its interest in human health factors. The veterinarian and the physician are drawn ever more closely through their coöperative efforts to solve the problems of those diseases which affect both man and his animals.—*R. R. Cross, M.D., Director, Illinois Department of Health, Springfield.*

Public health is an organized effort at health promotion and disease prevention. It is everybody's business and everybody's responsibility. It consists of six steps: (1) recording births and deaths; (2) reporting contagious diseases; (3) protecting human food; (4) making a diagnosis; (5) providing hygiene adequate for reproduction; and (6) public health education.—*E. E. Kleinschmidt, M.D., University of Illinois College of Medicine, Chicago.*

Veterinary public health deals with the 80-odd diseases which animals and man may acquire from a common source or which may be transmitted from animals to man. The USPHS, Veterinary Division, is concerned with three chief lines of effort: (1) Find the problem; (2) find the answer; and (3) disseminate information which will permit its control.—*J. H. Steele, D.V.M., USPHS, Atlanta, Ga.*

The dog is the first animal domesticated by man and has lived in close association for centuries, and hence is probably the most prolific animal source of human disease.—*T. G. Hull, Ph.D., American Medical Association, Chicago.*

Epidemiology is a study of the processes of disease and the important factors in spreading infection, which are: (1) virulence of the organisms; (2) resistance of the host; and (3) dosage, including length of exposure. Modes of infection are: (1) respiratory; (2) gastrointestinal; (3) inoculation; and (4) contact.—*J. J. Sievers, M.D., Chief, Division of Communicable Diseases, Illinois Department of Public Health, Springfield.*

The only service offered by Illinois Public Health Laboratories which is widely used by veterinarians is for rabies diagnosis.—*G. F. Forster, Ph.D., Illinois Department of Public Health, Springfield, Ill.*

The Meat Inspection Division was established in 1884 in the Bureau of Animal Industry, USDA. In 1948, it inspected 86 million pounds of meat, 70 per cent of all the U. S. production.—*O. W. Seher, D.V.M., Veterinarian in Charge, Meat Inspection Division, Chicago.*

Salmonella organisms have been isolated from all species of animals from the cold-blooded on up. Prevention is of paramount importance, because treatment and vaccination are disappointingly ineffective.—*H. J. Shaughnessy, Ph.D., Illinois Department of Public Health, Springfield.*

Bacterial food poisonings are of two types: (1) those produced by multiplication within the body (Salmonella); and (2) preformed toxins (Staphylococcus).—*Esther Meyer, Ph.D., University of Illinois College of Medicine, Chicago.*

The chief nutritional deficiencies are of protein and calories, and they cannot be separated. There is a vast difference in the nutritional needs of growing and of adult resting animals.—*J. B. Youmans, M.D., University of Illinois College of Medicine, Chicago.*

The four corners of the square meal are protein, calories, minerals, and vitamins Meat, dairy products, and foods of animal origin furnish the proteins to best advantage.—*B. M. Shinns, Armour and Co., Chicago.*

If milk is not good enough to drink raw. it isn't good enough to drink after it has been pasteurized. Pasteurization is not a substitute for healthy cows and sanitary milking practices.—*C. S. Bryan, D.V.M., Michigan State College, East Lansing.*

The philosophy of public health education

*Notes from the Institute of Public Health Practices for Veterinarians, Springfield, Ill., March 21-23, 1949.

carries two ingredients in about equal proportions: common sense, and democracy. It is effective only when supported by an understanding public.—*Mrs. Margaret Cowdin, Illinois Department of Public Health, Springfield.*

Public health education must be of a nature and on a plane which will permit the audience to comprehend the lesson being taught. At the same time, it must be sufficiently flexible to realize and allow for the fact that the correct answer of today may be wrong tomorrow.—*Robert Graham, D.V.M., University of Illinois College of Veterinary Medicine, Urbana.*

This is a day of specialists, the jack of all trades is outmoded. The veterinarian must be a specialist in many lines, and the number is growing with expansion of veterinary medical activity in public health.—*N. H. Howlett, D.V.M., Veterinarian in Charge, BAI, Springfield.*

There is a growing realization that the best way to balance the human diet is to provide increased amounts of protein of animal origin, and the cheapest way to do this is by controlling and eradicating the animal diseases.—*C. E. Fidler, M.D.V., Superintendent, Division of Livestock Industry, Springfield.*

Public health education must present accurate, concise, and consistent information to livestock owners as well as to the consumers of animal foods. This means that all people must be educated for a successful program.—*L. R. Davenport, D.V.M., Illinois Department of Public Health, Springfield.*

A brucellosis survey on a county basis can be successful only when it includes all animals of all species.—*E. A. Schilf, D.V.M., BAI, USDA, Springfield.*

Avian tuberculosis can be eradicated by holding laying hens only one year—the all-pullet flock plan. The plan is economical and provides more eggs and meat per dollar of feed cost than any other plan.—*W. C. Logan, D.V.M., BAI, USDA, Springfield.*

Although the monetary costs of living with livestock diseases are dwarfed to insignificance by the direct and indirect effects upon human welfare, nevertheless, the practicing veterinarian must continue to consider animal diseases on an economic basis, since this confronts him on every call in his daily practice.—*R. C. Klussendorf, D.V.M., American Veterinary Medical Association, Chicago.*

As much as 7 or 8 per cent of salt has been found in the crop in cases of suspected salt poisoning in chickens.—*Vet. Rec., Aug.* 13, 1949.

Canine Eczema Due to a Hormonal Imbalance

Alopecia in a Pomeranian due to hormonal disturbance was reported by Edgett[1] who described successful treatment through the use of testosterone propionate injections. He referred to Anderson, who had achieved success in a similar case by means of testicular implantation. The following case differs from Edgett's in that the skin of this patient was not black and glossy but red, inflamed, and infected due to a "self-inflicted eczema," and, in addition, this dog is monorchidic.

A male Shetland Sheepdog, 3 years of age, was presented for examination in February, 1948. The hair was absent from the medial side of both hind legs, the inguinal region and the sheath, the perineal region, the underside of the tail, and from the back as far forward as the shoulder blades. The skin was red and infected; in some places, scabs had formed over the self-inflicted sores. Pruritus was so intense that he bit, scratched, and rubbed himself under or against furniture. From his anal sacs, a yellow purulent semifluid oozed. Only one testicle was palpable. It was normal. The dog had fleas. No parasites were found on microscopic examination of the skin. He was fat but otherwise in good condition. The eczema was of eighteen months' duration. He had been under the care of other veterinarians and treated with a great many preparations. An elimination diet had been tried in an attempt to discover food allergies. None of these helped.

The dog was hospitalized for ten days. The fleas were removed and a palliative, antiseptic treatment was applied locally. The anal sacs were manually expressed and treated with injections of a solution of sulfanilamide, sulfathiazole, and urea, in a propylene glycol base. Thyroid, 0.1 gr., orchic substance, and tablets containing potassium bitartrate, sulfur, and echinacea were administered.

When the dog was sent home, the skin had cleared and the itching had subsided. The hair began to grow back slowly. It was found that when the orchic substance was not administered, the hair fell out and the pruritus would start again. About two weeks after the dog had been sent home, the owner, who had been examining the dog's skin with a magnifying glass, reported the growth of small, fine hairs. In about two months, the bare spots were almost completely covered with varying amounts of hair. About April 30, the orchic

[1] Edgett, J. A.: Alopecia in a Pomeranian Due to Hormonal Disturbance. North Am. Vet., *24*, (1943): 675.

substance furnished had been used up and not renewed. On May 9, the dog was again examined because the symptoms were almost as bad as they had been when the dog was first seen. With resumption of the same medication, the condition again improved.

On July 7, methyl testosterone (10 mg.-tablets) was substituted for the orchic substance. The change was made since methyl testosterone, when orally administered, is a more effective androgen, and duplicates the clinical effects of the male sex hormone more reliably than orchic substance. New hair again reappeared. Once more it was noted that the mere discontinuance of these tablets for two to three days would bring forth the pruritus.

At present (June 16, 1949), the dog receives no medication other than a 10-mg. tablet of methyl testosterone daily. The owner reports, "The coat has returned completely and is more beautiful than it ever was. Hair has grown over the sheath where it had never previously appeared. There is no more itching. There is no more oozing from the anal sacs. His bark is more masculine than before treatment, when it was like that of my female 'Shelties.' "—*Matthew A. Troy, D.V.M., Pelham, N. Y.*

Control and Eradication of Brucellosis in Animals—An Abstract

(The Journal of the American Medical Association, *Oct. 1, 1949, contains an article by Dr. W. W. Spink, Minneapolis, Minn., titled "Control and Eradication of Brucellosis in Animals." Dr. Spink is chairman of the Committee on Public Health Aspects of Brucellosis, of the National Research Council, which was appointed to review the pertinent information and to formulate a report on methods of control and eradication. Dr. Spink's paper is essentially the report of that committee, and the brief abstract here presented is condensed from the manuscript.)*

In the United States, the policy of attempting to eradicate important livestock diseases has been adopted, whenever possible, on the philosphy that the advantage lies on the side of living without a disease rather than with it. This is especially true of diseases of domestic animals which may be transmitted to man. The policy has been economically sound.

Figures from the coöperative brucellosis control program indicate that about 20 per cent of cattle herds throughout the country harbor some infected animals and that about 5 per cent of all adult female cattle are affected with brucellosis. On this basis, 1,300,000 dairy and 800,000 beef cows are involved. The loss from decreased milk production, fewer veal calves, and necessary replacement of dairy cows is approximately $92 million annually. Losses in swine are more difficult to compute but will probably raise this to an even $100 million.

With brucellosis, no single plan has proved effective under all conditions, and it has been a real task for some leaders to adjust themselves to this situation. There has, instead, been a tendency to go "all out" for one particular approach, rather than to face the fact that a modification or another plan might be more suitable. The confusion which has existed is largely attributable to the ardent sponsorship of different plans by different veterinarians. In most cases, a willingness to accept the known information on brucellosis would result in less confusion to both the owner and the veterinarian than dogmatic adherence to a pet plan.

One of the difficulties has been the failure to agree on basic procedures and to accept them on a nation-wide scale. Instead of getting together on brucellosis control and eradication, those concerned have, in many instances, engaged in the easier method of criticizing one another. Hours have been spent in heated discussion of details which the individuals closest to that particular problem should have worked out for the existing conditions.

[The article also contains the list of 21 statements, each a known fact about brucellosis, as enumerated in "What Is Known about Brucellosis" in the "Proceedings of the U. S. Livestock Sanitary Association," 1948; the recommendations for legislation; and the basic four-plan program for brucellosis control and eradication from the 1947 Proceedings of the same organization. —ED.]

Brucellosis Testing and Vaccination Increases

During the fiscal year ending June 30, 1949, 236,555 more cattle were blood-tested than during the preceding fiscal year, reports the Bureau of Animal Industry. A total of 5,671,347 cattle were blood-tested, according to preliminary reports from the states coöperating with the Bureau. There was also an increase of 413,801 in the number of calves reported as officially vaccinated with strain 19 vaccine. The national average of reactors revealed by the blood tests decreased from 4.3 to 4 per cent. North Carolina remains the only modified accredited state, with a reactor percentage of 0.8 per cent.

Almost 450,000 more cattle were subjected to the tuberculosis test than during the preceding year. The national average of reactors remained the same as it has been for the past two years—0.19 per cent. No state reported a reactor percentage as high as 1 per cent during the past year.

Observations on the Use of Brucella Abortus Strain 19 in Swine—Including Multiple Intradermal Doses

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AN OUTBREAK of brucellosis in a swine breeding herd can result in severe economic loss during a given breeding year. The disease can continue to cause serious losses in succeeding years if steps are not taken to control it. The unit-segregation system of eradication reported by Cameron[1] is efficacious when the requirements of the system are met. Hutchings, Delez, and Donham[2] and Cameron and Carlson[3] have shown that the agglutination test is not reliable when used for the detection of brucellosis in the individual pig, but is of greatest value when applied to the herd as a whole. Consequently, the swine breeder purchasing individual replacement animals cannot rely on a single negative agglutination test as protection against the introduction of brucellosis.

The development of a satisfactory method of immunization against this disease would not only offer the swine breeder greater protection in his enterprise, but should aid in solving an important public health problem.

Hadley and Beach[4] described swine brucellosis as a self-limiting disease, in that a naturally acquired infection is usually followed by immunity. These workers conducted experiments attempting to produce immunity through vaccination. They used bacterins and live cultures of *Brucella suis* While the results with bacterins were inconclusive, they indicated that some protection from abortion was obtained when a live vaccine was used.

Hutchings, Delez, and Donham[5] point out that, from the economic standpoint, control of abortion is important; but, from a public health standpoint, vaccination should confer complete resistance to the disease. These workers indicate that reëxposure of animals previously infected with *Br. suis* may have some resistance against abortion, but that reinfection may occur and be a possible menace to other swine, cattle, or human health.

Miller[6] reported that studies by the BAI indicate that an active resistance to swine brucellosis can be artificially induced. However, *Br. abortus* strain 19 was found to be ineffective in producing a serviceable degree of resistance to virulent *Br. suis* infection. On the other hand, Holm, Ardrey, and Beeson[7] reported that 88.8 per cent of the gilts vaccinated with strain 19 farrowed normal litters compared with the nonvaccinated controls, only 22.2 percent of which farrowed normal litters following challenge doses with virulent *Br. suis*.

The work reported herein was undertaken in the spring of 1946, at which time the value of strain 19 for the protection of swine against brucellosis was a controversial matter.

METHODS

The data presented in this paper were collected during a two-year study of brucellosis in a single herd used primarily for instruction in the various phases of swine

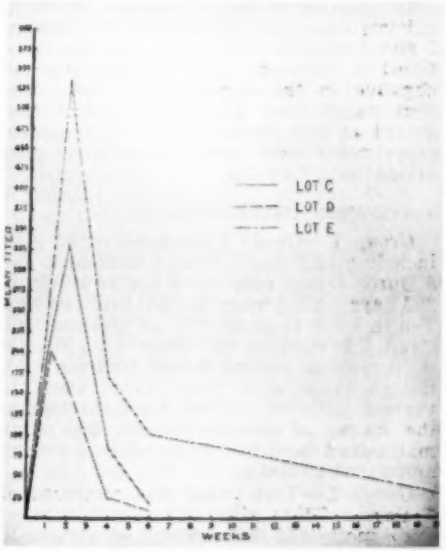


Fig. 1—Mean titers of three lots of 3 pigs each, vaccinated with Brucella abortus strain 19 by three different methods. Lot C received 5 cc. of the vaccine subcutaneously. Lot D received 1 cc. intradermally. Lot E received 1 cc. intradermally at the same time lots C and D were vaccinated, and a second injection of 1 1/4 cc. intradermally seven days later.

From the Department of Veterinary Science (Lindley) and Department Animal Husbandry (Lander), California State Polytechnic College, San Luis Obispo.

production. Vaccination experiments were conducted on replacement animals, and an attempt was made to keep these animals segregated from the infected members of the herd. Facilities did not permit culturing of Brucella organisms, nor could infection experiments be conducted.

For the most part, titers were determined with standard rapid plate antigen. Manthei has found little discrepancy between plate and tube antigen, and he found no added value in using modified antigen prepared from *Br. suis*. With the exception of the observation on group 7 where tube antigen was used, titers were determined only in the 1 : 25, 1 : 50, 1 : 100, and 1 : 200 dilutions.

The vaccine used had been tested and approved for use in the official California calfhood vaccination program. All animals were tested prior to vaccination and found negative to the agglutination test.

The initial test was made on the herd on March 19, 1946. At this time, 59 sows and 8 boars were tested. Twenty breeding sows and 2 boars showed a positive reaction to the agglutination test. In addition, there were other animals in the breeding herd which were found negative to the agglutination test at this time, but had histories of positive titers and abortions at earlier dates.

In addition to the 67 mature breeding animals described above, 22 gilts between 5 and 7 months of age were selected to be added to the herd. These animals were all negative to the agglutination test. The first vaccination experiments were conducted on this group of gilts. Vaccination experiments were conducted with 60 gilts divided into 7 groups.

VACCINATION EXPERIMENTS

Group 1.—Group 1 consisted of 22 gilts including 12 Poland China, 5 Berkshire, and 5 Duroc Jersey ranging in age from 159 to 203 days. They were divided into two lots. Ten in lot A received 5 cc. of a commercial strain 19 vaccine; the other 12 gilts, lot B, served as nonvaccinated controls. Although these gilts were moved about to various pastures on the farm throughout the course of the experiment, they were maintained separate from other breeding animals at all times.

Group 2.—This group was composed of 7 Poland China gilts, 158 to 165 days of age, vaccinated with 5 cc. of strain 19 vaccine subcutaneously during the time the experiment with group 1 was under way. No additional controls were kept. These gilts were maintained separately from group 1 and all other breeding animals on the farm.

Group 3.—Group 3 consisted of 5 Duroc Jersey gilts, 122 to 123 days of age, at the time vaccination was started. They were vaccinated with 5 cc. of strain 19 subcutaneously, followed by 2½ cc. intradermally twenty-one days later.

Group 4.—There were 5 gilts, 96 to 108 days of age, in group 4. These gilts were vaccinated with 1 cc. of strain 19 intradermally, 3 times at two-week intervals.

Group 5.—This group included 6 gilts the same age as group 4. The gilts in this group were vaccinated with 3 injections of 1 cc. of strain 19 intradermally, but with a two-week interval between the first and second injection, and a three week interval between the second and third.

Group 6.—There were 6 gilts, 125 to 132 days of age, in group 6. These gilts were vaccinated with 2 intradermal injections of 1 cc. each of strain 19, with a one-week interval between doses.

Group 7.—The 9 gilts (5 Berkshire and 4 Duroc Jersey) of group 7 were 187 to 196 days of age. They were divided into three lots of 3 each: C, D, and E. Lot C received 5 cc. subcutaneously of a commercial vaccine desiccated by lyophilization. Lot D received 1 cc. of this vaccine intradermally. Lot E received 1 cc. intradermally at the same time lots C and D were vaccinated, and a second injection of 1¼ cc. intradermally, seven days later.

The only exposure to brucellosis that any of the groups received was natural exposure. This exposure was apparently severe in the early part of this work, but undoubtedly diminished as the work progressed.

RESULTS

With the first groups, the agglutination titers were determined at approximately monthly intervals. With later groups, in order to more accurately determine peak titers agglutination, tests were made at weekly intervals until a definite titer pattern was established. A number of factors may influence the height and duration of titer following vaccination, such as age of the animal, dose, and route of administration of the vaccine. In this study, a comparison was made between different doses of vaccine and routes of administration. In general, it was found that repeated intradermal doses of vaccine gave higher and more prolonged titers than single subcutaneous doses. This was most clearly demonstrated in the results from group 7 in which a comparison was made between three lots of 3 gilts each. The comparison of mean titers is presented in figure 1. The titers rose rapidly in each of the lots, to

an average of 1 : 200 at the end of one week. This appeared to be the peak titer in lot D. In lot C, peak titers were apparently reached during the second week. By the sixth week, some of the gilts were negative in both lots C and D in the 1 : 25 dilution. In lot E, the second injection caused the titer to continue upward for another week, rather than recede as in lot D. The titer was much more persistent in lot E, as all gilts still showed a titer of 1 : 25 at twenty weeks postvaccination, whereas, in lots C and D, all members were negative at the 1 : 25 dilution at ten weeks postvaccination. These gilts were never exposed to brucellosis and have never shown increases in titer after they became negative.

The only conclusive evidence in regard to immunizing value of the vaccine was obtained with groups 1 and 2. In group 1, lot A, 4 of the 10 gilts farrowed litters of 2, 4, 4, and 10 pigs. Two of the vaccinated gilts aborted at 98 and 107 days. The other 4 gilts failed to farrow as yearlings. The gilts in group 1 were bred to 2 young boars (D_1 and P_1), neither of which had been used on sows in the infected herd. Three of the gilts that failed to farrow were bred to boar P_1 who proved of low fertility, apparently due to masturbation. He did not cover the gilts satisfactorily. There is a possibility, however, that some of these gilts may have had unnoticed early abortions. The evidence points rather strongly to the possibility of abortion in the fourth gilt that failed to farrow.

In the control lot, 2 of the 12 gilts developed titers indicative of infection ninety days after the start of the experiment. These gilts were disposed of. Of the 10 remaining gilts that were bred, 3 farrowed normal litters, 5 aborted between fifty-five and one hundred days in the gestation period, and 2 failed to farrow to the services of the previously described boar P_1. Both of these gilts developed titers indicative of infection. One remained sterile, and the other proved fertile at a later mating.

In the lot of 12 control gilts, every animal showed evidence of contact with the infection within a year from the start of the experiment, as evidenced by the development of positive titers. In the vaccinated lot, 7 of the 10 developed titers that indicated they came in contact with the infective agent during the year following vaccination. Hutchings, Deiez, and Donham[5] indicate that reëxposed animals frequently develop titers again, and that these animals usually are reinfected. The other 3 gilts did not develop titers again after vaccination titers had receded, and if they came in contact with the infective agent it apparently did not stimulate the development of agglutinins.

In group 2, vaccinated with 5 cc. subcutaneously, 1 gilt showed a recedence in titer followed by a rise. This was interpreted to result from contact with infection, and this gilt was bred to the boar D_1, who at this time was being used on positive and suspicious sows. This gilt farrowed 5 normal pigs.

The other 6 gilts in this group were bred to a young boar P_2 that had not been used previously. These gilts were bred between eighty-nine and 123 days after vaccination. At 145 days after vaccination, they were showing strong increases in titer. Of these 6 gilts, only 1 farrowed a normal litter of 11 pigs. Three of the gilts aborted sixty to seventy-five days after breeding. One gilt completed a 115-day gestation period, and, following difficulty in parturition, a single large edematous fetus was delivered by cesarean section. During the postoperative period, when she was being fitted for market, she showed evidence of spondylitis. The sixth gilt apparently did not conceive, although she may have had an early abortion. She was finally disposed of as sterile. In this group, the evidence indicates all 7 of the gilts came in contact with infection. Five of the 7 showed definite symptoms attributed to brucellosis.

In group 3, 4 of the gilts farrowed an average of 4 pigs as primiparae. They remained in the herd and farrowed an average of 12.25 pigs following their second pregnancy. The fifth gilt in this group continued to show a titer of 1 : 50 for approximately a year, when she was sold to eliminate all reactors from the herd, at which time she was well along in pregnancy. This gilt did not farrow a litter with the other gilts in this group. It is possible she may have aborted during her first gestation. However, if she had aborted, one might have expected this to be a source of exposure to the other 4 gilts in this group. These 4 gilts were negative, in all dilutions, 107 days after the second dose of vaccine, and no increase in titers was ever observed.

Of the original 17 gilts in groups 4, 5, and 6, 14 farrowed 119 pigs, for an average of 8.5 pigs, and raised 84, for an average of 6 pigs, as primiparae. All farrowings were normal with the exception of 1 gilt from group 6 which still showed a partial agglutination in the 1 : 50 dilution nine months after vaccination. This gilt farrowed 10 pigs, 6 of which were dead, and sloughed a necrotic placenta. She had been ill during gestation and was sold after weaning her litter. The 3 other gilts did

not enter the breeding herd for a variety of reasons.

The gilts in groups 4, 5, and 6 showed prolonged duration of titers compared with groups 1 and 2. However, when the titers had shown complete recedence no increase in titer was observed.

DISCUSSION

In groups 1 and 2, 5 cc. of *Brucella abortus* strain 19 vaccine injected subcutaneously in gilts between 5 and 7 months of age did not give satisfactory protection against field exposure to *Brucella suis*. There were clinical indications that 14 of the 17 vaccinated animals in the two lots became infected within the first year, and definite abortions were observed in 5 of 17 gilts vaccinated in the manner described above.

These results seem to be in agreement with the reports by Miller,[6] Manthei,[8] and recently by Kernkamp and Roepke.[9] The gilts in these trials were older than those vaccinated by Holm, Ardrey, and Beeson[7] and by Kernkamp and Roepke.[9] The gilts were also older than those reported by Manthei[8] which were vaccinated with strain 19.

The exact source of exposure was not determined, as an attempt was being made to protect both groups from exposure. However, the infection was widespread in the herd at that time, and seemed to be highly virulent.

Starting with group 3, real progress began in eradicating the disease. One important difference was made in the management of the vaccinated gilts at this time. When they were selected for breeding purposes and vaccinated, they were placed in a pasture, and, with the exception of being driven to the boar, were left in that pasture until taken to the farrowing house.

With the exception of the control lot in group 1, no gilts were saved for breeding without being vaccinated, until the disease was definitely eradicated in December, 1947. At this time, the breeding sow herd was made up only of the vaccinated animals from groups 3, 4, 5, and 6. All other animals had been sent to market. However, additional gilts had been selected and isolated at another spot on the campus. These were introduced into the herd after the disease had been eradicated.

Thus, it is evident that a modification of the unit-segregation plan was an important factor in the eradication of the disease.

On the other hand, it should not be ignored that a dangerous source of infection existed almost up until the time that the gilts in groups 3, 4, 5, and 6 began to farrow in the fall of 1947. The storm of abortion in group 2 occurred in the spring of 1947. The gilts in groups 3, 4, 5, and 6 were bred as primiparae to 1 of 4 boars. All these boars had histories of breeding infected sows previously. Consequently, these gilts were subjected to a source of exposure from which an attempt had been made to protect groups 1 and 2. Two of these boars were Duroc Jersey (D_2 and D_3) and never showed a positive reaction to the agglutination test. D_2 was later retained in the clean herd to be used only on the vaccinated gilts. No trouble has resulted from this decision in over a year. One boar was a Berkshire (B_1) which exhibited incomplete agglutination at 1 : 50 and had a history of breeding a number of positive sows. The fourth was a Poland China boar (P_2) which sired the aborted litters in group 2. He settled 1 gilt (P-6) in group 6 and bred another gilt (P-9) in the same group that did not conceive to him. The above mentioned gilt (P-6) was the last fertile mating of this boar. At this time, he showed an incomplete agglutination at 1 : 50. This boar developed a well-defined orchitis a short time later and was castrated.

While the evidence is insufficient to indicate that any immunity resulted in groups 3, 4, 5, and 6, neither can the possibility of dangerous exposure be ignored. Since the original objective of eradication of the disease from the herd has been accomplished, further studies were not conducted; consequently, the data which was gained is presented at this point.

SUMMARY

Data have been presented on the results of vaccination of 48 gilts with *Brucella abortus* strain 19 by several different methods.

Gilts vaccinated with 5 cc. subcutaneously were not satisfactorily protected against field exposure to *Brucella suis*.

Peak titers, following vaccination with a single dose of vaccine, appear to be reached between one and two weeks after vaccination.

Higher and more persistent titers were obtained by repeated doses than when a single dose was used. The intradermal route was used primarily for this method.

The evidence indicates that vaccination titers will not persist indefinitely unless infection occurs.

Gilts vaccinated with repeated doses of vaccine by the intradermal route farrowed satisfactory litters and did not exhibit breeding difficulty. Positive evidence of immunity was not obtained.

A brucellosis-free herd was established. In light of present evidence, the credit for

this is attributed to the unit-segregation system of brucellosis eradication.

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The Mexican Foot-and-Mouth Disease Campaign

Recent reports from below the border have focused on the following developments in foot-and-mouth disease eradication:

1) November 1, 1949, is a crucial date, because it marks the approximate end of the rainy season in Mexico. Foot-and-mouth disease often flares after a period of heavy rainfall, observers point out, and, therefore, the start of dry weather will provide a critical test of the effectiveness of the vaccination program. If no outbreaks occur in vaccinated animals or in previously uninfected areas, hopes for ultimate success will run high.

2) Mexican-United States campaign officials expect that the third round of vaccination of all susceptible animals in the infected zone will be completed early in 1950. The first round of vaccination, covering 13,071,533 cattle, sheep, goats, and swine, was completed on Aug. 1, 1949. At that time, progress already had been made on second and third vaccinations, in keeping with the decision to vaccinate each animal three times a year.

3) Vaccine production is soaring in Mexican laboratories, under the direction of United States and Mexican veterinarians. An additional laboratory, to be used for identifying and typing viruses as well as for vaccine production, was opened recently at Palo Alto, near Mexico City. Mexico's total vaccine output is now about 5 million doses a month, and reporters say 10 million doses could be produced monthly in the event of an emergency.

4) Outbreaks of violence, with several fatal shootings of United States and Mexican personnel, have been reported in recent months, and an organized minority is said to be trying to "wreck the campaign." Moreover, vaccination teams say they are having difficulty in getting the *campesinos* and small farmers in remote areas to bring in their animals for second and third vaccinations.

Incidence of Rabies, 1948

The Bureau of Animal Industry, USDA, reports 8,508 cases of rabies during the calendar year 1948. Of these, 6,610 cases were in dogs, 599 in cattle, 378 in cats, 36 in swine, 34 in horses, 14 in sheep, 5 in goats, 819 miscellaneous, and 13 in human beings. The five states with largest numbers of cases reported are: Texas 1,035, Indiana 788, Kentucky 743, Tennessee 721, and Ohio 629.

No cases were reported from Connecticut, District of Columbia, Maryland, Massachusetts, Montana, Nevada, New Hampshire, North Dakota, Oregon, South Dakota, Vermont, and Washington. Six other states reported 1 case each.

Salicylic Acid for Canker of the Foot.—The compression treatment for the otherwise incurable granular disease commonly named canker of the equine foot, long known to be successful if patiently carried out for eight to ten weeks, can be greatly improved by the free use of salicylic acid beneath the compression padding, says Haebig (*Thèse*, Lyon, quoted by *Rev. Méd. Vét.*, May, 1949). His thesis for his doctor's degree contains the report of 8 cured cases treated by this method. The compression is effected by pounding a heavy, bendable strip of sheet iron (held under the flanges of the shoe) upon a padding laid over the lesion.

The feeding of 1 Gm. of mixed tocopherols per cow daily did not increase the milk or butterfat yield in carefully controlled experiments by Phillips and others in Wisconsin.—*J. Nutr., Dec.* 10, 1949.

DDT and X Disease

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DURING the past few months, following the discovery of accumulations of DDT in tissues of animals exposed to this insecticide for long periods, and its presence in the milk of dairy animals, there have appeared in popular literature many articles of an alarmist nature in regard to this chemical. Many of the statements appearing in these articles have subsequently been refuted by public health officials and scientists in a position to know the true facts.

As pointed out in an editorial in the *American Journal of Public Health*[1], soon after the storm of these articles, a joint group of experts representing the Agricultural Research Administration and Production and Marketing Administration of the U.S. Department of Agriculture, the Office of the Surgeon General of the Army, the Food and Drug Administrator, and the U.S. Public Health Service of the Federal Security Agency, the Bureau of Medicine and Surgery of the Navy, and the Pan-American Sanitary Bureau, issued a statement pointing out "that the toxicity of DDT for man has been given full consideration in making recommendations for its use. There is no evidence that the use of DDT in accordance with the recommendations of the various federal agencies has ever caused human sickness due to DDT itself."

The authorities further mention, "Statements that DDT is responsible for causing the so-called 'virus X disease' of man and 'X disease' of cattle are totally without foundation. Both of these diseases were recognized before the utilization of DDT as an insecticide."

An epic of misstatements occurred when a physician, in an article on DDT poisoning in man[2] invaded a field in which he was totally unfamiliar and without any true basis of facts, assumed that X disease in cattle was possibly due to DDT poisoning. His assumption evidently was partly based on reading symptoms rather sketchily applied to X disease by a farm magazine, which, in turn, had abstracted the symptoms, in part only, from a farm press release from the Department of Agriculture. In stating that "numerous cases of X disease culminating in severe hemorrhagic enteritis occurred in these animals," he may have observed DDT poisoning, but certainly not the usual X disease.

Previous to the quoted article, the same remarks appeared in the *Journal of the American Veterinary Medical Association*[3] under the title of "DDT Poisoning and X Disease in Cattle." The harm of such unfounded statements can well be seen with the further publication of a short article, "DDT Poisoning in a Cow,"[4] in which the previous article is quoted as a reliable reference. In this article, the author describes a case of apparent skin allergy and not X disease, or hyperkeratosis. The above diagnosis is substantiated by the prompt response of the patient to antihistamine treatment. The diagnosis of DDT poisoning was based on the fact that the herd was located in an orchard which had been sprayed. It was not stated that DDT occurred in the spray or how large the herd was, and a reader would assume that only one cow was affected.

There never has been any direct evidence that the etiology of X disease was in any way connected with the use of DDT. X disease was in existence long before DDT was used as an insecticide. There is positive evidence that in some areas, such as Texas, X disease has existed for a number of years. While many of the herds in which X disease has been found have used DDT as a cattle spray, there are also numerous herds in which DDT had never been on the farm.

Assumed facts, such as have appeared in the quoted articles, are only disproved by positive evidence which reveals the true facts. Listed in this article are 6 cases of X disease which were positively diagnosed by clinical symptoms and characteristic pathologic lesions on autopsy. In these cases, positively diagnosed as true X disease, portions of liver, kidney, brain, and body fat, were chemically analyzed for evidence of DDT.

Case 1.—This case concerns a 4-month-old grade Jersey heifer calf from a milking herd. The owner had lost 10 calves from X

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disease during the winter of 1947-1948, and 15 during the winter of 1948-1949. All losses occurred in a calf lot where calves from 2 to 6 months old were kept. No animals over 6 months of age were affected. The herd consisted of 85 head. No DDT had been used on the calves.

The calf was emaciated and the skin, over most of the body, was dry and thickened. Hyperkeratosis was especially evident on the sides of the neck, over the back, and between the rear limbs. Lacrimation was present. There were thick, yellowish, warty growths on the gums, tongue, and hard palate. The calf became moribund in three weeks and was electrocuted.

Autopsy revealed the skin and mouth lesions previously mentioned. The lymph glands throughout the body were swollen and edematous. The mucosa of the abomasum was thickened, swollen, and edematous. The mucosa of the duodenum was wrinkled and edematous. The small and large intestine showed a catarrhal enteritis. The liver was slightly enlarged and fibrotic. The mucosa of the gall bladder showed several vesicle-like lesions considered diagnostic of X disease. The kidneys showed a beginning chronic nephritis.

Tissues of this calf, examined chemically, were negative for DDT.

Case 2.—A 7-month-old grade female calf was 1 of a group of 12 that were emaciated and failed to grow. Noticing lice, the owner had sprayed them, after they had become emaciated, with DDT. He had also treated the calves with phenothiazine for parasitism.

Clinical examination showed lacrimation, diarrhea, pediculosis, and thickened skin over the sides of the neck, typical of hyperkeratosis. No mouth lesions were present. The calf was extremely emaciated.

The animal died in five days and autopsy showed, in addition to the skin lesions: enlarged lymph glands throughout the body, pneumonic areas in the lungs, congestion and thickening of the mucosa of the abomasum, and catarrhal enteritis. The liver was firm and slightly cirrhotic. The mucosa of the gall bladder was thickened, and cystic lesions characteristic of X disease were present in the large bile ducts.

Chemical analysis of tissues was negative for DDT.

Case 3.—The owner of a 1½-year-old Jersey heifer had 6 other calves suffering from X disease. This particular heifer, submitted for clinical examination, showed loss of condition, anorexia, lacrimation, diarrhea, and thickening of the skin over the back and sides of the neck. There were two small erosions on the dental pad. The animal died eleven days after admission into the clinic.

Autopsy revealed the clinically observed lesions and, also, edema of the subcutis. The lymphatics of the anterior and posterior limbs and in the pleural and peritoneal cavities were swollen and edematous. A few atelectatic areas were present in the lungs. The lymphatics of the head and neck were greatly swollen and edematous. The mucosa of the abomasum was reddened and slightly edematous. There was marked edema under the mucosa. The mucosa of the small intestine was swollen and wrinkled. The cecum and large colon showed a catarrhal enteritis. The liver was swollen and congested. The gall bladder was greatly distended and the mucosa was swollen and hemorrhagic. The kidneys were edematous and congested. The perirenal fat showed edema.

Examination of heart, liver, brain, kidney, and body fat, was negative for DDT.

Case 4.—A grade Hereford yearling heifer and a grade Jersey yearling were brought to the surgical clinic for diagnosis. Both animals showed clinical symptoms of X disease in loss of condition over several weeks, lacrimation, rough, thickened skin on the sides of the neck, and diarrhea. Both animals were also suffering from intestinal parasitism. The owner had lost 18 of 42 head of young animals purchased in September, 1948. The first deaths occurred in February, 1949. The Jersey heifer died May 5, 1949, and, on autopsy, revealed lesions characteristic of X disease. The Hereford heifer died May 10, 1949.

Autopsy lesions were hyperkeratosis of skin, especially over neck, excessive lacrimation, evidence of diarrhea, crusting of skin around nostrils, and generalized edema of the body lymph glands. There were several necrotic erosions on the hard palate. Some proliferative lesions were present on the ventral surface of the tongue. The mucosa of the abomasum was swollen, edematous, and showed many petechiae. The small intestine showed some catarrhal enteritis. The liver was slightly swollen. The mucosa of the gall bladder showed many small petechiae. The common bile duct showed two cystic lesions on the mucosa. The kidneys were edematous.

Portions of fat, liver, brain, and kidney were negative on analysis for DDT.

Case 5.—This was a yearling purebred Aberdeen-Angus steer which was one of 4 yearlings showing marked evidence of X disease. The yearling was in poor condition. Excessive lacrimation and keratitis were present in both eyes. Stomatitis was evidenced by excessive salivation, and small

ulcers were present on the oral mucosa and the margins of the nostrils. The skin was thickened and very wrinkled over the neck, back and legs, and along the abdomen. The animal was electrocuted eleven days later because of approaching death.

Postmortem changes, besides the clinical lesions, included characteristic swelling of the lymph nodes, and the usual edematous and wrinkled mucosa of the abomasum, especially near the pylorus. The liver was swollen and congested, showing interstitial fibrosis. The mucosa of the gall bladder showed the typical cystic lesions in considerable number. The kidneys showed cystic degeneration in the pyramids.

DDT determinations of the tissues were negative.

Case 6.—Another animal from the same group as case 5 was autopsied on May 27, 1949. This yearling showed the same clinical symptoms as the previous case.

The autopsy showed lesions typical of X disease. In addition to the usual appearance of the lymph glands and the abomasum, the mucosa of the small intestine was edematous and wrinkled. Numerous retention-like cysts were present in the mucosa. Similar lesions were present in the colon. The liver was enlarged and friable. Many vesicle-appearing lesions were present in the large bile ducts. There were many small cysts in the mucosa of the gall bladder. The perirenal and renal fat was granular. The medullary portion of the kidneys was congested.

Tissues were examined for DDT with negative results.

METHODS OF ANALYSIS

The chemical analyses of the tissues for DDT were conducted by Schofeitt using two different methods of analysis. Knowns were run at the same time to check both of these methods. One consisted of extracting finely divided dehydrated tissue with benzene, refluxing the obtained solution with metallic sodium in presence of isopropyl alcohol, and then determining the liberated chlorine as chlorides by the Volhard method.

The second method consisted of extracting the tissue with benzene, removal of fats with sulfuric acid and anhydrous sodium sulfate, and then determining DDT using the colorimetric method of Schrechter *et al.*[5]

CONCLUSION

In a series of 6 cases of so-called X disease occurring in bovine animals which were positively diagnosed by clinical and postmortem examination, chemical examination of body fat, brain, liver, and kidney failed to reveal the presence of DDT.

The presence of X disease before the use of DDT, its occurrence on farms where DDT has not been used, and the absence of the insecticide in the tissues of known cases of X disease is positive evidence that DDT is not associated with the etiology of X disease as against the hypothetical and assumed evidence quoted in the mentioned literature.

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Hemogram of Sheep.—Examinations of sheep's blood by Abramov (*Veterinaryia*, 1947, abstr. in *Rec. Méd. Vét.* Apr., 1949) gave the following cell counts per cubic millimeter:

Erythrocytes	6,077,000
Leucocytes	10,025
Thrombocytes	400,000
Hemoglobin	39 %
Eosinophils	8.8%
Neutrophils	25.6%
Lymphocytes	61.0%
Monocytes	4.3%

The sheep were adults, 18 to 24 months old, in good health and parasite-free.

Livestock Diseases Given Top Priority

The Livestock Advisory Committee of the Research and Marketing Administration, USDA, in a recent report, recommended that diseases, worm parasites, and insects be "given top priority among livestock problems." Listed among the pressing problems are: brucellosis, hyperkeratosis (X disease), and shipping fever. Importance is attached to stomach worms and liver flukes. Horseflies, deer flies, and screw-worm flies are the top pests of the insect category mentioned. The toxicology of insecticides, the genetic improvement of farm stock, the all-year farrowing of pigs, baby-pig mortality, the utilization of animal fats, and the nutritional requirements of farm animals are set apart for prior consideration.

Twenty Years of Progress in Immunization Against Virus Diseases of Birds

(*Continued from October* JOURNAL)

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INFECTIOUS BRONCHITIS

This disease was unknown until Schalk and Hawn (1931) called attention to it and proposed the name infectious bronchitis. Bushnell and Brandly (1933) studied it under the impression that it was laryngotracheitis. The filtration experiments of Schalk and Hawn were prejudiced by infection in the controls, but in one test, the controls remained well. Filterability was confirmed by Bushnell and Brandly (Berkefeld), Beach and Schalm (1936, Berkefeld V. N. and W.), Beaudette and Hudson (1937), Delaplane and Stuart (1939, all grades of Berkefelds and Seitz), and by Hofstad (1945, Seitz).

Recovered birds are immune and develop neutralizing antibodies in the blood (Beach and Schalm, Beaudette and Hudson, Delaplane and Stuart, Hofstad, and Asplin, 1949). On the basis of limited information, there is no immunologic difference between strains. Beach and Schalm studied two California strains, Hofstad neutralized a Van Roekel strain (possibly Beaudette's) with the serums of New York birds. Asplin found no differences in three English strains and an American strain obtained from Hofstad.

Bronchitis virus bears no immunologic relationship with the viruses of other respiratory diseases of chickens such as laryngotracheitis (Beach and Schalm, Beaudette and Hudson, Delaplane and Stuart, Brandly *et al.*, 1946, and Asplin); Newcastle disease (Brandly *et al.*, Reagan *et al.*, 1948, and Asplin); or pox (Asplin). Morphologic similarity to Newcastle disease virus, however, was demonstrated by Reagan *et al*, (1948) in electron micrographic studies which showed some rounded bronchitis bodies with filamentous projections. The virus does not cause hemagglutination (Hofstad, 1945), and immune serum does not inhibit agglutination of red cells by Newcastle disease virus (Asplin).

Further characterization of the virus was furnished by cultivation in the developing egg by Beaudette and Hudson (1937). In early passages, the virus is relatively nonfatal to the embryo and produces no lesions on the chorioallantois which tends to adhere to the shell membrane. The embryo is dwarfed, its liver is swollen, and the yolk sac vessels are injected. With continued passage, the virus acquires lethal properties. Thus, from the second to the sixth passage, all embryos lived to harvest on the fifth or seventh days; but from the seventh to the fourteenth passage, only 9 of 36 embryos lived to harvest.

These observations were confirmed by Delaplane and Stuart (1940) who carried a Rhode Island strain through 34 passages. In the first 10 to 12 passages, there was dwarfing, but few deaths occurred before the seventh day. After this, deaths prior to the sixth day increased and, about the twentieth passage, practically all embryos were dead by the fourth or fifth days. This strain produced whitish, opaque, rounded lesions from 1/8 in. to the size of a dime in diameter, whereas with the New Jersey strain, these were smaller and not regularly noted. These authors record that the Beaudette strain, received as a forty-sixth passage and carried through an additional 24 passages, was more pathogenic for the embryo and killed in two to four days. Later, these authors (1941) record that, with a decrease in the killing time, the chorioallantoic lesions were seen mostly in embryos that survived three days or longer. Asplin (1948) carried the English strain through 25 passages and noted few deaths in early passages. But, from the fourteenth passage on, most of the embryos were dead in from two to seven days. Dwarfing was the only change noted.

Immunization.—Little effort has been wasted in attempts to immunize with inactivated virus. Delaplane and Stuart (1939) reported that 2 cc. of a 20 per cent tissue suspension inactivated by 0.5 per cent formalin produced no immunity. They also record that equal parts of a 1 : 10 dilution of virus and serum was noninfectious and nonimmunizing.

Beaudette noticed that the New Jersey strain decreased in virulence for the chickens as it became more pathogenic for the embryo. With the sixtieth passage of this strain, Delaplane and Stuart were able to produce only a slight nasal discharge after six days, and the birds were immune twelve days later. However, "it failed to protect young chicks, or to cause any clinical reaction in them when used in the same manner." In the light of Jungherr and Terrill's (1948) report, it is clearly evident that Delaplane and Stuart had used parentally immune chicks. In fact, it is mentioned that with reference to the Beaudette strain, no changes took place in

serial passage until the seventy-seventh passage, when eggs from recovered birds were used.

From this point on, it is difficult to evaluate the results of these workers because it seems likely that they used parentally immune chicks at times. Thus, while the seventh, twenty-sixth, thirty-fourth, and fortieth passages of their virus were pathogenic for chicks, the seventy-seventh, as noted above, and the eighty-first were only mildly pathogenic. The eighty-ninth failed to infect 373 day-old chicks, the ninetieth caused no symptoms in 300 chicks, and another lot of 600 showed no reaction after bursal inoculation. The chicks that survived inoculation of the eighty-ninth and ninetieth passages were susceptible to challenge ten days and two weeks later. The ninety-third passage, on the other hand, produced occasional infection on intranasal inoculation into 354 chicks, and later, a number showed mild but typical symptoms. Possibly, in this case, some of the chicks were susceptible, became infected, and served to infect others as they lost their parental immunity. Since no losses are mentioned, it may at least be assumed that the strain was quite avirulent. In their hands, the Beaudette strain at comparable passages gave different reactions with respect to season, being more pathogenic in the winter.

Asplin also records that, in inoculating chicks with each egg passage to confirm the presence of virus, a tendency to become progressively more mild was noted.

In the meantime, Beaudette and Hudson (unpublished) made limited tests with birds beyond the age capable of carrying parental immunity and showed that they carried no neutralizing antibodies. When inoculated intranasally with virus that had undergone about 70 passages, no symptoms were produced, but fourteen days later, neutralizing antibodies were present, and the birds resisted inoculation of field virus. And yet, Delaplane and Stuart found that the seventy-sixth passage of this strain produced some deaths, the ninety-seventh produced symptoms in older chicks, and the 125th also produced symptoms if inoculated in the winter. However, since no mention is made of losses, it is evident that the strain had become relatively avirulent and might be used as a modified virus for immunization purposes. The original strain kept in this laboratory, although still killing embryos in about forty-eight hours, has long since lost even its antigenic powers.

The egg-adapted virus apparently retains this characteristic after passage in the chicken since the virus recovered from chicks inoculated with the seventy-sixth and 117th passages, respectively, continued to kill embryos in about the same time.

Although serial passage in eggs may be used to effect modification of the virus, there is the suggestion that relatively avirulent strains occur in nature. Asplin reported that his strain A was carried through 36 passages in chicks 7 to 14 days old with a loss of only 6 out of the 251 used.

It is common knowledge that bronchitis is of economic importance if contracted at either of two stages in the life of the bird. During the first week, the disease may cause nearly 100 per cent mortality. The rate decreases with age, so that after the first three weeks, it is relatively benign. However, when the disease affects laying birds, the loss in production may equal that caused by Newcastle disease or even surpass it, by virtue of a prolonged effect.

Taking advantage of the fact that the disease is relatively harmless in a certain age group, a crude method of immunization is used in a few New England states, whereby a few birds are infected and allowed to spread the disease to the others. Published details are scant but presumably a bird-passed virus is used. Jungherr and Luginbuhl (1949) record that since 1946, 246 lots in 175 flocks containing 633,849 birds have been immunized in this manner. Infection was induced at an average age of 97 to 107 days for the three years. The owners reported good results in 143 lots, fair in 8, poor in 3, and no effect in 25. Since the owners of the remaining 67 lots gave no report, it is assumed that the results were not unfavorable. Infection of about 5 per cent of the flock is induced by swabbing or by spraying in the case of larger flocks. It is suggested that this be done at 6 to 8 weeks of age. The birds should respond with symptoms of "cold" in three to seven days, and these should disappear in fourteen to twenty-one days.

It is of interest that, as in Newcastle disease, chicks hatched from immune breeders have a parental immunity as demonstrated by Jungherr and Terrill (1948). Antibodies in the yolk were shown to decrease in concentration during the second half of the embryonation period and to increase in the embryo and serum. Immunity in the chicks was at a high level for two weeks, then decreased and finally disappeared by the fifth week. Thus, the parental immunity carries the chick through the period of high mortality and active immunization after this period would insure permanent protection.

In any method of immunization utilizing active virus, consideration should be given to the possibility of producing carriers. Delaplane and Stuart (1939) found 1 bird in which a nasal discharge persisted for eight weeks during which time virus was recovered, but the carrier state ended when the discharge ceased. In extensive experiments, Hofstad (1945) was unable to infect chicks exposed for a month to chicks that had recovered two to three months previously, but when exposed to chicks re-

covered only three weeks previously, there was apparently some transmission. In further tests (1947), he reported that survivors of an outbreak twenty to thirty-five days previously, transmitted the disease to contacts, but failed to do so at eighty to ninety-four days.

If live or modified vaccines are developed commercially, it will be important to have data on viability of the virus in a dried state. Beach and Schalm (1936) found that dried virus was still active after 130 days. Cunningham and Stuart (1947) reported that the titer of lyophilized virus dropped from 5 times 10^{-5} to 5 times 10^{-3} after several days at 4 C. Beaudette *et al.* (1948) tested dried virus of various passages from the thirty-ninth to the 152nd, which had been held for 301 to 3,053 days and only those held 684 days or less were active. However, the third and twelfth passages of another strain were still active after holding 2,562 days.

FOWL PLAGUE

This disease is of historical interest not only because it was the first fowl disease, but also because it was one of the earliest animal disease viruses to be filtered. The first immunization trials were conventional and borrowed largely from those already used in dealing with bacterial infections. Consequently, the first experiments in immunization made use of dead or inactivated virus.

Early Experiments with Inactivated Virus.—Following are the early experiments with inactivated virus.

Heated Virus.—The first experiment was made by Maggiora and Valenti (1903) and failed. Maue (1904) used blood heated at 70 C. for five minutes or at 60 C. for thirty minutes. Russ (1906) used exudate, blood, spleen, and brain exposed to 58 to 60 C. for periods of one and one half to ten hours and gave 13 to 14 injections. V. Prowazek (1908) heated virus to 80 C. Jouan and Staub (1920) claim to have produced immunity by a dose of 10 cc. of blood heated at 46 to 47 C. for three days, or at 60 C. for three to four hours. And yet, Doyle (1927) failed with a 10 per cent spleen emulsion heated at 60 C. for one hour, even when six injections of 1 cc. each were used, and Todd (1928) failed with 8- to 15-cc. doses of blood heated at 58 C. for thirty minutes.

Dried Virus.—Maggiora and Valenti failed with dried virus, but Kraus and Schiffman (1907) claim to have immunized old geese against subdural injections by two or three injections of chicken cord dried five to twenty days.

Chemically Treated Virus.—Maue had no success with virus treated with chloroform, and V. Prowazek failed with virus treated with saponin or glycerin. Using virus of blood, brain, and liver origin treated with ether, Belfanti and Ascoli (1916) succeeded only in prolonging the course of the disease after challenge. Staub (1926) was the first to employ formalin. A 20 per cent spleen suspension with 0.2 per cent formalin and held at 37 C. for forty-eight hours was reported to immunize in doses of 5, 3, and 2 cc. Doyle (1927) had inconsistent results, negative with single doses of 3 to 5 cc. on one test, or multiple doses of 1 to 6 cc. on another, but positive when 2 subcutaneous injections were made. One survivor of three, 5-cc. injections survived a natural exposure that killed 23 controls. Todd (1928) failed with three injections of 2.5 to 10 cc. of formolized spleen, but succeeded with a 20 per cent liver suspension inactivated by a 60 per cent glycerin and 0.5 per cent phenol, held at room temperature for seven days, and administered in three doses of 0.5 to 3 cc. Blood similarly treated gave negative results, but 0.2 per cent tricresol could be used instead of the phenol. Finally, Pfenninger (1929) subjected different strains of brain virus to various concentrations of ether and phenol for varying periods and injected fowls, with negative results. He concluded that only live virus immunizes.

Immune Serum.—Serum from the sheep, goat, ass, goose, duck, and pigeon was used by Maue, from the goose by Maggiora and Valenti, and from hyperimmunized, naturally recovered chickens by Ostertag and Bugge (1906), but with limited success even when doses of 10 cc. were used. Kraus and Loewy (1915) showed that when the virus was neutralized by serum, the chicken did not survive a challenge fourteen days later. Jouan and Staub (1920) found that serum given forty-eight hours prior to a virus injection failed to protect but was effective if given at twenty-four hours. They confirmed Kraus and Loewy's finding that a neutralized virus did not immunize. However, when alexin was removed from the virulent serum by absorption with rabbit cells, to prevent reactivation of the heated immune serum, the resulting sensitized vaccine was said to immunize. Lastly, Doyle (1927) failed to passively immunize with hyperimmune duck serum.

Early Experiments with Modified Virus.—Kleine and Möllers (1905) were the first to try what might be considered a modified virus. They used the brains of old geese and pigeons which are difficult to infect, but only 1 injected chicken survived and was immune. Kraus and Schiffman (1907) dried goose cord over KOH at 22 C. Two geese that had received four injections of this material dried ten, five, four, and two days, respectively, resisted an injection of fresh goose cord two weeks later, as well as an injection of chicken virus. One even resisted the chicken virus given subdurally. They also showed that old geese that resist intramuscular, but not subdural, injections are immunized against the latter mode of infection by two intramuscular injections of fresh virus.

Although old geese usually resist intramuscular injection, Kraus and Loewy (1915) found a strain in geese that spread to pheasants and was recovered

from an inoculated chicken and which would infect geese by intramuscular injection. The brain of such a goose infected another by the subcutaneous route; but four subcutaneous injections of the usual goose virus, followed by two injections with the new strain, protected old geese against two subdural injections. Four intramuscular injections of the usual strain protected against a subcutaneous, and then a subdural, injection of the new strain. Even one subcutaneous injection protected against intramuscular infection.

Erdmann (1920) showed that the rate of change in virulence in tissue cultures depended upon the type of tissue. The change was interpreted as attenuation, since some inoculated chickens died and others were immunized. Lastly, Lagrange (1929) observed that the brain of a bird dead of the Egyptian type of plague, although avirulent (autosterilization), still immunized.

Recent Experiments.—**Some of the older methods of inactivation were repeated with the usual failures, and new ones were introduced which had limited success.**

Zanzucchi (1930) used temperatures of 40 C. for ten days, or 37 and 22 to 25 C. for twenty-five days. Kondo and Nakamura (1933) heated brain suspensions for thirty minutes at 56 C. and attempted drying at 23 and 37 C. Levine *et al.* (1936) failed to produce a solid immunity with repeated injections of virus submitted to a pressure of 4,000 atmospheres. Moses *et al.* (1948) found that exposure to a wave length of 2,537 Å* destroyed the virus and its antigenicity in one and twelve hundredths seconds, but that exposure to 1,600-1,800 Å wave lengths inactivated the virus in seven and seventy-eight hundredths seconds, but preserved its antigenicity.

However, progress was made in chemical inactivation. Staub (1930) reported that two injections of 1/8 cc. of a formolized 10 per cent spleen suspension gave as much immunity as one dose of 2 cc. But the immunity was transitory, weakening by the twenty-fifth day and disappearing by the forty-fifth. A challenge, ten days later, produced a durable immunity.

Purchase (1930) had no success with Todd's vaccine and found some lots virulent up to nineteen days. Out of 46 birds treated, 19 survived, of which 9 resisted a challenge. Normal liver or bile added to virulent muscle offered no improvement, and all birds that survived treatment died on challenge. Zanzucchi tried two types of phenolized vaccine (Fermi and Kondo) with inconsistent results. Four increasing doses of vaccine formolized 1 to 5: 1,000 failed, as did Staub's vaccine except when given in large doses. Kondo and Nakamura (1933) employed a variety of agents (phenol, glycerin, saponin, toluol, glycocholic acid, formalin, and ether) with little success. Some protection resulted when a spleen suspension was treated with 0.7 per cent chloroform at 37 C. for twenty-four hours, or at room temperature for forty-eight hours.

*Angstrom units.

The experiments of Schmidt *et al.* (1936) showed that while brain suspensions of mice dead late of an injection of virus and $Al(OH)_3$ do not immunize alone, they become antigenic for multiple doses if mixed with $Al(OH)_3$.

Spears (1946) used an egg-propagated crystal-violet vaccine (10 per cent tissue, 3 per cent aq. sol. disodium phosphate, and 0.5 per cent aq. sol. crystal violet in the proportion of 8 : 1 : 1, respectively) with promising results. A dose of 5 cc. protected 6 fowl against challenge twenty-two days later. Infected liver and spleen were found to be as effective as egg virus. Immunity was developed in fourteen days, began to decrease after two months, but sometimes lasted for ninety-one to 151 days. Antigenicity of the vaccine was retained regardless of the time (1 to 6 months) or temperature (—4 to 18 C.) of holding.

The most extensive experiments with inactivated vaccines have been reported by Moses *et al.* (1948). Egg-propagated virus of high titer was inactivated with 0.4 or 0.2 per cent formalin for tissues and fluids, respectively. Antigenicity at pH 6 to 9 was fully retained for 142 days and when injected intradermally or intramuscularly, elicited the same response. A dose as small as 0.05 cc. of 10^6 units of virus produced some resistance as late as ninety-eight days. Comparative studies showed that adjuvant vaccines (Falba and mineral oil) were superior to nonadjuvant vaccines. Divided doses of either type were superior to a single dose of the same number of virus units. The duration of immunity was at least eighteen to twenty-one weeks with adjuvant vaccine, and with nonadjuvant vaccines, 80 per cent of the birds resisted to sixty days.

Attempts to use live or modified virus have been few. Zanzucchi gave four injections of a 10^{-7} dilution of a virus that was infective at 10^{-5}, but on challenge with a 10^{-6} dilution twenty days later, all of the birds died.

Working with the Egyptian type of plague, Lagrange (1930) observed that the brain of a recovered or artificially immunized fowl, although avirulent and nonimmunizing, will become (if the bird is challenged) at first virulent for about fifteen days, then avirulent and immunizing, and, finally, avirulent and nonimmunizing. After an infectious meal, the brain fails to become virulent, but is antigenic within forty-eight hours and then ineffective after seven days.

Plotz (1933) was unable to change the properties of the Staub strain (apathogenic for ducks) by nine serial passages in duck embryo tissue cultures.

Contrary to Collier, Seidenberg (1933) was unable to immunize chickens against plague by injecting a suspension of Rous' sarcoma nineteen days previously.

The extensive and carefully conducted experiments of Hallaur are of more scientific interest than of immediate practical value. Early experiments (1931) demonstrated that certain chicken embryo tissues (brain, skin, and iris epithelium) support growth, while in others (fibroblasts, osteo-

clasts, blood monocytes), the virus is only conserved. Tissues of the duck, goose, and pigeon could also be used. Cultivation in chicken embryo liver (1934) resulted in loss of virulence but retention of antigenicity. Later (1939), he demonstrated that the character of a virus can be altered by the type of tissue on which it is grown. In these experiments, the Nieschultz (pathogenic for mice) and Ascoli (nearly apathogenic for mice) strains were used. Largely carried out with mice, the modified strains allowed some survivors which were immune. Injected into fowls, the altered strain merely prolonged the incubation period. The passages were made in chick brain-tissue cultures or in chick tissue cultures minus brain and cord.

Of more immediate interest is the report of Moses *et al.* (1948) relative to variant strains which appeared spontaneously in serial passages of the virus in eggs and in chickens. Those from eggs appeared in inoculums diluted to the end point, and they occurred in late dead embryos. The variants were characterized by lower virulence for eggs, much lower virulence for chickens, and avirulence for mice. The lack of ability to clump blood cells was ascribed to the low virus content. The variants produced immunity by injection, application to the nasal or cloacal mucosa, or by feather follicle. Immunity was demonstrable in two to four days, reached a high titer in ten to twelve days, and lasted eighteen to twenty-one weeks—the longest period tested. The dose had little influence on the amount of immunity except that, with one variant, it was rather proportionate to the size of the dose. Response was the same regardless of the method of injection.

NEWCASTLE DISEASE

Attempts to produce immunity against Newcastle disease, with virus treated with such chemicals as chloroform, toluol, tricresol, phenol, glycerin, phenolized glycerin, hydrochloric acid, saponin, sulphuric ether, sodium ricinoleate, sodium borate, bile, and other agents, have been attempted with little or no success. Aged or desiccated virus has either killed or failed to immunize the subject, or has immunized under conditions that could not be duplicated. Subinfective doses or small doses given by some unnatural channel, such as the feather shaft or cloaca, have given imperfect immunity.

Of the chemically treated vaccines, however, the formolized antigens have given the best results. Crawford (1930) had no success, but Haddow (1933-36) and Nakamura *et al.* (1933-37) gave encouraging reports. Haddow and Idnani (1941) had some success with a spleen virus adsorbed on alumina gel, but in 1946, they substituted egg embryo fluids for the spleen virus which produced immunity for about five months in older birds, but only for two to three months in younger ones. Beach (1942) used a 37.5 per cent suspension of egg-propagated virus containing 0.1 or 0.2 per cent formalin, and injected this intramuscularly or intraperitoneally in single or repeated doses into chicks 2 to 96 days old which were challenged fourteen to seventy-eight days later. In field trials in 1943, on about 50,000 birds, only one flock that had received two injections escaped infection, and the vaccinated suffered as severely as the controls. In 1944, vaccines containing 12.5 to 50 per cent tissue were used and, again, 13 of the 14 vaccinated flocks contracted the disease in from three to six months, but the vaccinated birds suffered less severely than the controls.

Just before the war, Newcastle disease appeared in Italy and was at first diagnosed as laryngotracheitis. Here, Vianello (1941) used tissue virus treated with anisole (methyl-phenyl ether) and claimed protection of 60 to 70 per cent of the birds for three to four months. Half a million were vaccinated in Italy. Ilieff and Barel (1942) had favorable results with phenolized egg virus adsorbed on alumina gel. When the disease appeared in Germany, Traub (1942-43) employed two injections of a formolized vaccine or a single injection of the product adsorbed on alumina gel. This was also used by Mass (1943) and Schaaf (1943-44).

The most exhaustive experiments on inactivated antigens have been those of Brandly *et al.* (1946). These authors emphasize the importance of using a virus of not less than 10^{-7} titer, and although inactivation by formalin or ultraviolet light was equally effective, the former method was simpler and more easily controlled. Variation in the concentration of tissue from 7 to 70 per cent gave equally good results. Slight differences were noticed in the antigenicity of different strains and in response to different methods of administration of which the intravenous route (limited to vaccine made only from egg fluids) was the most effective. Two 0.5-cc. doses, given a week apart, gave better results than a single 1-cc. dose, and the use of adjuvants extended the duration of immunity. However, quantities of Falba and oil greater than 7.5 and 22.5 per cent, respectively, produced undesirable tissue reaction, but this adjuvant was more effective than alumina gel which could be incorporated to the extent of 50 per cent. The response of different age groups varied from about 60 per cent in young birds to 85 per cent in older ones. It is admitted that the duration of immunity in birds which responded to formolized vaccine was short, but with adjuvants, this was extended to 122 days in some cases. In others, the immunity was lost within three weeks.

Iyer and Dobson (1941) reported inconsistent results with a crystal-violet-treated vaccine and Acevedo and Mendoza (1947) had inconsistent results with a variety of vaccines, but when egg virus was treated with equal parts of glycerinated phosphate buffer solution and attenuated with 0.05 per cent crystal violet and 0.05 per cent formalin, or 0.7 per cent sodium borate and 0.1 per cent formalin, it produced immunity against 50 to 100

lethal doses of virus given shortly thereafter. Coronel (1947) suspended egg virus in buffered saline and treated it with chloroform, ether, toluol, and formalin and immunized 2 or 3 birds with the latter. Potency was not improved by substituting egg yolk emulsion for buffered glycerin, but when adsorbed on alumina gel, the potency of vaccine inactivated by each of the agents, excepting ether, was improved, with formolized vaccine showing definite superiority. This was found to be effective in 0.25-cc. doses, but was recommended in a dose of 0.5 to 1 cc. for young and 1 to 2 cc. for adults. On the basis of preliminary tests, vaccination three or four times a year was recommended. Favorable reports were had on about 75,000 doses used in the field.

***Modification by Animal Passage.*—The results of modification by animal passage are as follows:**

Pigeon.—Picard (1930) was unable to modify the virus by serial passage in the brains of pigeons, and Shirlaw (1937) effected no change by passage in the pigeon (route not stated) or mouse. Haddow and Idnani (1946) made 180 serial passages in the pigeon, and various passages from 101 to 180 still killed 12 to 16 per cent of the fowl, and over 50 per cent of the chicks. Komarov and Goldsmit (1946) reported that nine serial passages of a Palestinian strain by the intracerebral route failed to effect any change.

Duck.—Komarov and Goldsmit (1946) initiated infection in ducks with a pigeon brain of the fifth passage, made 14 passages, and noted that the virus became avirulent for chicks (age not stated) by the tenth passage. Haddow and Idnani (1946) injected ducklings (1 to 10 days old) with a duck egg-passed virus and were able, in 1 case, to carry it through five passages, by which time it had become markedly attenuated for fowl. When transferred to hen eggs, the virus killed embryos only after three to seven days. Normal growth and embryo-killing power were restored after two or three egg passages, but the virulence for fowl was not regained. Used as a vaccine (passage not indicated) on birds not affected by an intercurrent disease, the loss incident to vaccination over a period of two weeks was 0.9 to 3.1 per cent.

Hamster.—Reagan *et al.* (1947) initiated infection in hamsters with a twenty-second egg-passaged virus which became uniformly fatal for the hamster after the seventh passage. The sixteenth passage would not infect rabbits but grew in 1 of 3 guinea pigs, in which species it could not be passed. An eighth passage produced infection in young white Swiss mice but could be carried through only four passages. A rhesus monkey was not infected by an injection of egg virus, but sickened when injected with hamster virus. Early hamster passages were pathogenic for chickens, but by the forty-ninth passage, little pathogenicity was revealed and birds were immune to a challenge at thirty days. When the virus was then passed in hen eggs, pathogenicity appeared to be regained. Chicks survived when injected with an emulsion of the brain of a sheep which died after injection with hamster virus, but the immunity was not satisfactory at thirty-day challenge.

Lillie *et al.* (1948) compared the response in 6-week-old chicks to an injection of 0.5 cc. of a 10 per cent brain suspension of the fifty-first hamster passage with a virus made from fluid of eggs inoculated with the 146th hamster passage and found that the former gave a quicker and better response, that is, 85 per cent were immunized at twenty- or thirty-day challenge.

Tissue Culture.—Topacio (1934) was the first to report that tissue-cultured virus might have immunizing properties. Bankowski and Boynton (1948) grew the virus in a modified Simms-Sanders medium and observed loss of ability to agglutinate red cells after a single passage, but not its infectivity for the egg embryo in which ability to clump red cells was regained. Cultivated in bovine ultrafiltrate, the virus showed a tendency toward modification, so that 10 of 14 chicks inoculated with fourth to tenth passaged virus survived and, in spite of a low red cell inhibition titer, they resisted a challenge of 200,000 m.l.d.'s. Cultivation in chicken ultrafiltrate was less effective.

Hen Eggs.—Iyer and Dobson (1940) were the first to report modification of the virus (English strain) by serial passage in hen eggs. The degree of modification was, however, relative because in 1943, Iyer warned that if given to chicks under 12 weeks of age, some mortality could be expected. But mere serial passage does not always result in modification. Of three Indian strains studied by Iyer and Hashmi (1945), only one was temporarily changed and, on further passage, seemed to regain virulence. However, the number of birds used was really too small to justify definite conclusions. The Mukteswar type of vaccine was used by Goor and Moses (1946) in the southern district of Palestine, where the loss from death and paralysis in adults was about 2 per cent, and in chicks 6 weeks or older, a loss of 1.5 per cent and a paralysis rate of 1 to 5 per cent. In chicks under 6 weeks of age, the authors observed no appreciable mortality which was undoubtedly due to parental immunity, because Komarov (1947) showed that the strain was 100 per cent fatal for day-old chicks in the northern district where, even at 21 days of age, 44 out of 205 died or became paralyzed. Goor and Moses were not aware of the existence of parental immunity which had already been demonstrated by Brandly *et al.* (1946) and later by Komarov (1947). In order to avoid using the vaccine on parentally immune chicks, which would neutralize the virus, Komarov (1947) vaccinated chicks 3 to 4 weeks old and, of 48 flocks, 34 reacted favorably, with a loss of about 2 per cent and a paralysis rate of about 2 per cent. But in 14 flocks, the combined mortality and paralysis varied from 5 to 18.5 per cent for an average of 10 per cent.

Haddow and Idnani (1946) observed some loss in virulence after 50 serial passages made at two-day intervals in hen eggs, but no further change

in over 250 additional passages. Fifteen passages made in eggs incubated at 41.5 C. produced no attenuation, and heating the seed virus merely resulted in a delay in the time of embryo death. Injection of chickens with first or second passage of this material produced no reaction and no immunity. The R2B strain of Iyer's virus, after 115 to 126 egg passages, was found to cause a casualty of 2.5 per cent in adults in which egg production went to zero. It is claimed that chicks 6 weeks old could be injected and in field trials on 61,372 birds, the loss was 3.2 per cent if no intercurrent disease were present, but if present, the loss in 22,147 rose to 12.3 per cent.

Brandly *et al.* (1946) found that, even after a few egg passages, two New Jersey and one New York strain, as well as a laboratory strain, became relatively avirulent, but Coronel (1947) noticed no appreciable change even after 100 passages, and Acevedo and Mendoza (1947) noted none after 50 passages of their strains.

Beach *et al.* (1948) inoculated eggs by way of the yolk sac and noted some decrease in virulence by the twenty-first passage, and in both virulence and antigenicity by the seventy-second passage in titrations made on chicks 30 to 60 days old. Attempts to restore virulence by allantoic passage resulted in still further attenuation, with little effect on antigenicity in the case of one strain and none in a second. There was little tendency to spread from vaccinated to nonvaccinated.

The reasons for attenuation of the strain used by Hitchner and Johnson (1948) are unknown, but it is reported to produce no systemic reaction in adults and occasionally only mild respiratory symptoms in chicks as young as 1 day, when administered intranasally in doses of 0.05 cc. of a 20 per cent, whole embryo suspension. Although intranasal inoculation produced immunity up to 115 days (the longest period tested) application by the stick method to chicks 15 days old elicited no response. Infection by contact with vaccinated chicks in four cages occurred in ten, thirteen, seventeen, and twenty-five days, respectively. Chicks hatched from vaccinated hens showed little parental immunity.

Beaudette *et al.* (in press) screened strains from 105 outbreaks, and found one that was naturally apathogenic, or had become so after only three egg passages. The loss from all causes incident to vaccination of 2,884 college farm chicks, 30 to 36 days old, was 1.73 per cent, and 1.64 per cent in 8,715 successively hatched, parentally immune chicks vaccinated at 29 to 36 days of age. In 83,058 birds on 20 commercial farms, vaccinated at 25 to 169 days of age, the loss was 1.82 per cent. On a farm where the disease existed in adults, 4,732 chicks vaccinated at 29 to 56 days of age (with a loss of 7.5%) were fully protected; whereas the loss was 66 to 100 per cent in 2,775 nonvaccinated chicks that contracted the disease at 6 to 29 days of age. On another farm, vaccination was begun in three successive hatches after the disease started, and the loss reduced to 6 per cent or less; whereas in the six previous nonvaccinated hatches, the loss was 21 to 48 per cent.

Duck Eggs.—Haddow and Idnani (1946) observed a slight attenuation after ten passages in duck eggs, but no further change in 40 additional passages. Komarov and Goldsmit (1947), however, succeeded in modifying a strain by serial passage in duck eggs and referred to this as the Haifa vaccine. In comparative tests, this strain was found to be less virulent than the Mukteswar strain in all ages from 8 weeks up. Acevedo and Mendoza (1947), on the other hand, were unable to effect a modification after 50 passages in duck or turkey eggs, and Beach *et al.* (1948) observed no change in three strains passed through 28 generations in duck eggs inoculated by the allantoic route, or after ten passages in the yolk sac.

Van Roekel *et al.* (1948), presumably by duck egg passage, produced a strain of low virulence which, when applied by the stick method, produced an inflammatory reaction in the wing web in two to five days. In laboratory trials on birds 9 to 25 weeks old, none died and only 1 of 36 developed nervous symptoms. The birds were immune to challenge twenty-nine to eighty-five days afterward. Applied in the field to 11,600 birds 9 weeks or older, no cases of paralysis were noted.

Clancy *et al.* (1949) initiated duck egg passages with a sixth hen egg passage and observed that the eleventh passage was relatively avirulent for chicks 4 weeks old when dilutions of 10^{-3} to 10^{-6} were applied by the stick method. Of 120 chicks 3 to 4 weeks old, only 1 died and, on challenge thirteen days later, 114 of the 119 survived. Susceptible chicks, placed with chicks vaccinated five days previously, developed serum titers, but those added forty-one and eighty-three days postvaccination did not develop immune bodies. Of 10 birds challenged 110 days postvaccination, 2 sickened and 1 died. Appreciable titers were found in chicks hatched from birds vaccinated about a year previously. The authors point out that, whereas hen egg-propagated virus produces a local reaction, such reactions are uncommon with the duck egg-propagated virus. Field trials with the twelfth passage of this strain were reported by Markham *et al.* (1949), in which 37,040 chicks, 4 to 5 weeks old, were vaccinated and 2,150 held as controls. The loss averaged 1.36 per cent, with a range for the groups of 0.5 to 3.18 per cent in a period of twenty-one days. In another test, the loss was 6.1 and 1.83 per cent in two lots of 2,000 and 3,500 birds, respectively, as against 9.5 per cent in nonvaccinated birds. Of 60 birds challenged six weeks postvaccination, only 1 died.

EQUINE ENCEPHALOMYELITIS

The first spontaneous outbreaks of this disease in birds were reported in 1938. In that year, the virus was isolated from pheasants in New Jersey and Connecticut and from a Massachusetts pigeon (Tyzzer, Sellards, and Bennet, 1938; Forthergill and

Dingle, 1938; Van Roekel and Clarke, 1939; Beaudette, 1939-40). Aside from the recovery of the western type of virus from a North Dakota prairie chicken by Cox (1941), all other outbreaks have been caused by the eastern type of virus. The New Jersey outbreaks since 1938 have been recorded by Beaudette, Black, and Hudson (1941); Beaudette and Hudson (1945); and Beaudette and Black (1948).

Delaplane (1940) vaccinated groups of 3 cock pheasants each with 0.5, 1.0, and two 1.0 cc.-doses of commercial vaccine, and challenged these and 3 controls with 0.25 cc. of a brain suspension of eastern virus, with the result that all the controls developed typical symptoms while the vaccinated birds remained well.

Following the disastrous 1945 Forked River outbreak, all but two pens of the 1946 hatch were vaccinated with 0.1 cc. of commercial vaccine. Two lots of 800 and 1,600, 37 and 42 days old, were vaccinated by Beaudette on June 27 and July 3, respectively, and the others by the management at a later date. The results of the vaccination were prejudiced by the appearance of the disease in only one of the two nonvaccinated lots. The disease began October 3 and killed 374 (77%) of the 486 birds.

Experimental vaccine was used the same year on another farm where 360 and 165 birds, 74 and 53 days old, respectively, each received 0.4 cc. on August 6. But the disease had apparently already started and no beneficial effect from vaccination was noted.

Avian Encephalomyelitis

Jones (1932) described this disease as an encephalomyelitis and filtered the causative agent through Berkefeld N and Seitz filters. In 1934, she used the term "epidemic tremor" while Van Roekel, Bullis, and Clarke (1938) proposed the name infectious avian encephalomyelitis which, in turn, was shortened to avian encephalomyelitis in 1939 by the Committee on Poultry Diseases of the AVMA. Filterability has been confirmed by Van Roekel *et al.* (Seitz) and Olitsky (1939, Berkefeld V and N, Seitz 1 and 2).

Four survivors which retained a nonprogressive ataxia were inoculated by Olitsky with a 10^{-1} dilution of virus which caused no effect, whereas dilutions to 10^{-6} produced the disease in controls. The challenge was made eleven to thirty-one days after the primary injection, and forty-two days later, serum from these birds neutralized from 10 to 1,000 infective doses. Jungherr and Minard (1942) have also demonstrated neutralizing antibodies in recovered birds.

Apparently, chicks which show no symptoms after an injection known to contain virus are not immune to a subsequent injection.

Psittacosis

Sturdee and Scott (1930) noted that an occasional parrot or budgerigar resisted an inoculation that was fatal to other individuals of the same species, and that such birds were usually adults. This observation led to the conclusion that in an enzoötic area, the adults were largely immune. Parrots that had survived an inoculation of parrot or human virus developed a certain immunity to either strain of virus. A single attempt was made to immunize mice with a 10 per cent splenic emulsion (human strain) inactivated by 0.2 per cent formalin. Each of 2 mice received three doses of 0.3 cc. at weekly intervals and resisted a challenge (parrot strain) twelve days later that caused a control to die in nine days. Formolized antigens have also been used by Bedson and Western (1930), Levinthal (1935), and Bedson (1938).

Rivers, Berry, and Sprunt (1931) challenged 3 parrots that had recovered from an experimentally induced disease sixty-one to ninety-one days previously, 3 that had been inoculated thirty-one to eighty-two days previously with material subsequently shown to be free of virus, and 1 that had received, orally, either a small amount of virus or none at all. The known recovered birds resisted and all the others, plus a control, developed psittacosis.

Meyer has frequently expressed the opinion that resistance is probably constitutional; that while an attack confers immunity, the recovered bird is frequently a carrier in consequence of incomplete or delayed autosterilization. Meyer (1934) found the virus in an oviduct egg of a hen.

Rivers and Schwentker (1934) made the interesting observation that large amounts of active virus can be administered to monkeys intravenously or intramuscularly with relative safety, whereas smaller amounts intratracheally caused extensive and sometimes fatal pneumonia. Moreover, repeated injections produced resistance to intratracheal inoculation. This method was used to immunize human beings.

The experiments of Yanamura and Meyer (1942) showed that mice, given repeated intra-abdominal injections or large doses of virus completely inactivated by formalin, developed a demonstrable resistance to virus given by this route. The degree of protection depended on the antigenic mass, but was always relative, and presumed to be a function of genetic constitution. Some individuals showed no immunity, some were inapparently infected and carried the virus even up to 425 days, others suffered an initial infection and ultimately got rid of the virus, while still others were completely resistant to 100 m.l.d.'s.

Meyer, Eddie, and Yanamura (1942) gave year-old parrots seven injections each of 0.5 cc. of formolized vaccine at weekly intervals. Challenged fourteen days after the last injection with an intramuscular dose of 100,000 m.l.d.'s, 6 of 8 survived, as against 2 of 8 controls. No carriers were found in the survivors of either group at 108 and 133

days, respectively. Four 6-month-old parrots that survived the same dose, were reinoculated 265 days later with 10 million m.l.d.'s and all survived, but 1 was a carrier. Only 2 of 6 controls (15 months old) survived, and none was a carrier at 108 days. When rice birds, which are more uniformly susceptible, were given four or seven injections, a high grade immunity was not produced against a challenge of 100,000 m.l.d.'s, but 4 injections produced immunity to a challenge of 100 m.l.d.'s four months later. On rechallenge with 100,000 m.l.d.'s they again resisted, but half the birds were carriers at sixty-three days.

Quite obviously, immunization against psittacosis is of no practical importance to the poultry industry, but experiments on this infection might serve as a valuable guide in solving economically important poultry diseases such as infectious sinusitis of turkeys.

INFECTIOUS SINUSITIS

This disease may be the one referred to by Dodd (1905) as epizoötic pneumoenteritis, or as "swollen head" by Graham-Smith (1907). More recently, it has been called sinusitis (Tyzzer, 1926; Madsen, 1938; Hungerford, 1939 and Hart, 1940); "swelled head" (Hungerford); "swell head" (Dickenson and Hinshaw, 1939); and turkey "roup" (Hungerford). The bronchopneumonia reported by Gierke (1934), a respiratory disease of young turkeys reported by Harr (1943), and a chronic infection in chickens studied by Delaplane and Stuart (1943) and Delaplane (1948), may also be included.

The causative agent, cultivable in embryonating eggs (Harr; Minard, and Jungherr, 1944; Prier, Sutherland, and Beamer, 1948; Jerstad and Hamilton, 1948; and Hitchner, 1949), is considered as a virus (Hart and Jerstad and Hamilton) or possibly as a Rickettsia (Groupé, Winn, and Jungherr, 1948; Hitchner, 1949). The agent is nonfilterable through Elford collodion membranes of approximate A.P.D.* of 0.7μ (Hart); Seitz discs or Berkefeld N and V filters (Hitchner); or filterable through V filters (Groupé *et al.*) and N filters (Harr, Prier, *et al.*).

According to Hart, owners claim that recovered birds are immune. In fact, Hart injected 2 birds that had recovered three months previously and found them immune to an inoculation that infected a control. However, no immunity could be produced in 2 birds by cloacal swabbing or in 2 birds by subcutaneous injections.

If this be a rickettsial disease, future experiments on immunization should take advantage of what is known about psittacosis with due regard to the hazards of a nonsterile immunity, if an active agent is used. Jerstad and Hamilton have found the causative agent in noninoculated turkey embryos.

*Average pore diameter.

MULTIPLE VACCINATION

In order to reduce the labor cost of vaccination, the application of laryngotracheitis and pox vaccines at the same handling has been in vogue for years. Beaudette and Hudson (1933-34) introduced the practice and, more recently, Molgard and Covett (1947) have shown that the follicle method of applying laryngotracheitis with follicle or stick-method application of pox is not attended by untoward results. With the development of a vaccine against Newcastle disease, Van Roekel *et al.* (1948) have suggested that the application of Newcastle vaccine and fowlpox vaccine at the same time appears feasible. However, there are limitations to possible combinations. In areas where Newcastle disease is enzoötic, vaccination is imperative as soon as parental immunity is dissipated—that is, at 4 to 5 weeks of age. Vaccination against fowlpox and Newcastle disease at this age is highly undesirable because both viruses produce a systemic reaction, and mortality is likely to be exaggerated. Moreover, the coccidiosis season which follows is not one to be approached by a weakened flock. Substituting fowlpox with pigeon pox which does not produce a systemic reaction is also undesirable, because the duration of immunity provoked by pigeon virus is proportionate to the size of the vaccination lesion, and chicks of this age usually have poorly developed follicles. To postpone multiple vaccination with Newcastle disease and fowl or pigeon pox to a time when birds might tolerate the shock of fowl virus or develop follicles suitable for pigeon virus vaccination is to invite an attack of Newcastle disease.

The combination of Newcastle disease and laryngotracheitis vaccination at 5 weeks of age is possible because laryngotracheitis produces no systemic reaction. However, such a practice would be restricted largely to broiler stock in which pox vaccination is rarely required.

In areas where vaccination against the three diseases is required, the best procedure, for the present, would appear to be vaccination against Newcastle disease at 4 to 5 weeks, and laryngotracheitis and pox at the same handling at 8 to 10 weeks. However, vaccination of day-old chicks against fowlpox might be explored further and, if results justify the practice, immunization

against Newcastle disease and laryngotracheitis at 4 to 5 weeks could be done with an enormous saving of labor.

In certain areas, bronchitis is of sufficient importance to justify the mode of immunization already described. In fact, vaccination against this disease is done at 6 to 8 weeks and against the lesser important Newcastle disease and pox at a later date. Regardless of the recommendations, however, poultrymen will probably continue to explore all possible combinations to suit the needs of their area or their own type of management.

SUMMARY

The progress made in immunization against virus diseases of birds in the last twenty years may be summarized as follows:

Pox.—By 1929, enough evidence had accumulated to show that dead vaccine did not immunize, and that heat and chemically treated virus gave inconsistent results depending on whether it was dead or alive, and on whether it was properly administered. The use of attenuating agents was discontinued, but administration by routes other than cutaneous continued long after it was clearly evident that a durable immunity was associated with a vaccination point lesion. Thus, cutaneous application was adopted, but it had to be learned that an extensive vaccination lesion with fowlpox was more likely to be associated with severe systemic reaction. Hence, the use of swabs and scarification was replaced by infection of a few follicles or, better still, by the stick method, to limit the size of the vaccination lesion and reduce the systemic reaction. Field experiments also indicated the limitations of the use of fowlpox virus with respect to age of bird, season, and state of development.

It had long been known that pigeon-pox virus would infect the fowl, and it had been demonstrated also that fowlpox could be adapted to the pigeon and, with serial passage in this species, developed the properties of pigeon virus. But its use as an immunizing agent is largely confined to the last twenty years, and, whether natural or adapted, it produces an infection in the fowl that does not generalize, cause a systemic reaction, or spread by cohabitation, and yet provokes immunity to the fowl virus. Such a virus has many advantages over fowl virus, but the degree of immunity is not as solid as that produced by the latter. In time, it came to be appreciated that the degree of immunity is directly proportionate to the size of the vaccination lesion.

A comparable method of immunizing pigeons with a nonadapted fowl virus has not been developed. On primary inoculation, the majority of fowl strains produce no lesion in pigeons and, hence, no immunity. Consequently, immunization of pigeons is done by infecting a limited number of follicles with pigeon virus.

Vaccination of turkeys has developed entirely in the last two decades. There appear to be differences in strains of virus from the turkey as reflected by inoculation in the fowl. Some are not easily passaged, others are more pathogenic, and still others appear to be the same as fowlpox. In any event, the relationship is so close that fowl strains are used for turkey vaccination, but the immunity may run out and revaccination may be required after six months if birds are held as breeders. This may be evidence of slight immunologic differences between fowl and turkey pox.

Since fowl-, pigeon-, and turkey-pox viruses are not infectious for the canary, and therefore nonimmunizing, nothing resembling a Jennerian vaccination has been developed for canaries. Moreover, the use of live, natural canary virus usually results in 100 per cent mortality regardless of the mode of inoculation. However, serial passage of the virus in eggs appears to have effected a modification in one strain, since it now produces a definite infection in the fowl. This strain, applied by the stick method, produces a take in canaries and a solid immunity with a loss of about 5 per cent incident to vaccination.

Laryngotracheitis.—Just twenty years ago, this disease was found to be caused by a filterable virus. Within a short time, it was shown that a harmless infection could be produced by applying the virus to the mucosa of the vent, that no carriers were produced as in the natural disease, and that a solid immunity was established. In the meantime, it has also been shown that an equally harmless infection of the feather follicles is followed by immunity. This method, however, is more time consuming, requires more vaccine, and, at the moment, seems to offer no advantages.

Bronchitis.—This disease, unknown twenty years ago, appeared in 1930 and was immediately shown to be caused by a virus. The virus, inoculated into eggs, fails to kill the embryo or produce other changes in early passages, but remains fully virulent for the fowl. With adaptation to the egg, the virus kills embryos, and, with passage, the time of death becomes shorter and finally fixed at about forty-eight hours. Correspondingly, virulence for the chick is reduced to a point that the virus rarely produces a fatal infection and, therefore, may be used as an immunizing agent. However,

since with continued passage the virus eventually loses its antigenicity as well, measures to meet this eventuality would have to be exercised if the method were developed for field use. The present method of field immunization, however, is basically the same as that used in fowlpox, namely, artificial infection with fully virulent chicken-passed virus at an age when the disease is normally nonfatal and before egg production begins. Permanent carriers from natural infection have not been demonstrated.

Plague.—Very little progress has been made in the development of an effective and safe method of immunization against this disease. With the development of the egg method of propagating viruses, it has been possible to produce concentrated virus suspensions which, on inactivation with formalin, can be used in an emergency to produce an immunity of limited duration. However, out of all the immunologic investigations, the most important finding is that avirulent, and yet antigenic, strains with fixed characters occur during serial passages in eggs. Unfortunately, work was discontinued and the strains destroyed before the potentialities were fully investigated. Nevertheless, the conditions under which the variants arose are known, and it may be presumed that other strains might be developed.

Newcastle Disease.—As in the previous disease, a formolized antigen has been demonstrated to produce immunity, but with the disadvantage that all birds do not respond, and the duration of immunity is variable. From a practical standpoint, a flock so vaccinated is not suitable for revaccination until the majority of the birds have lost their immunity, and yet nothing can be done to protect the individuals that become susceptible in the meantime. Even if every bird were immunized for four to six months, control of the disease would require two or three vaccinations a year. For this reason, the use of live virus, to which all birds respond with a durable immunity, more nearly fulfills the requirements for control of the disease in enzoötic areas. Various degrees of modification have been effected by such means as intracerebral passage in ducks and hamsters, tissue culture, serial passage in hen eggs by the allantoic and yolk sac routes, and in duck eggs. Moreover, relatively apathogenic strains occur in nature or lose their pathogenicity after only a few passages in eggs. The degree of modification is sufficient if the strain can be tolerated by chicks 4 weeks old, because it has been demonstrated that chicks from vaccinated or recovered breeders enjoy a parental immunity to about this age. In the light of continued loss of antigenicity in bronchitis virus with serial passage in eggs, care should be taken to preclude over-modification of Newcastle disease strains. Permanent carriers from natural or artificial infections have not been demonstrated to prejudice the use of live virus vaccines.

Equine Encephalomyelitis. — This has been known as a virus disease since 1931, and as a disease in birds for only eleven years. Although birds may play an important role in the epidemiology and epizootiology of the infection, the clinical disease is confined largely to pheasants. The only immunization trials reported have made use of inactivated virus, and the results are questionable.

Avian Encephalomyelitis.—Determined as a virus disease in 1932, no attempts have been made to immunize against this disease in spite of the fact of its growing importance.

Psittacosis.—Experimentally, large doses of formolized antigen have produced an immunity against a small challenge dose of virus, but always with the risk of a nonsterile immunity (immune carriers).

Infectious Sinusitis.—Almost no attempts have been made to immunize against this disease.

CONCLUSION

In conclusion, it is evident that simple and effective methods of immunization have been developed for all the epizoötic virus diseases of birds. Moreover, great strides have been made in growing viruses in eggs to insure freedom from contamination. Finally, methods of preservation have been developed to insure that the products reach the field in an active state. Commercial production of poultry vaccines is almost entirely a development of the last twenty years.

It is not anticipated that the wise use of active virus will further spread the disease since, in at least the only case in which carriers follow a natural attack (laryngotracheitis), such a state is not associated with immunization.

It is already apparent that certain virus infections are becoming more common and likely new ones will be identified, so that there is no lack of problems. But for the moment, the poultrymen feel secure, and the pathologist has many more tools than he possessed twenty years ago.

Salmonella canoga is the name given to a new organism isolated from the cecal content of a 10-day-old poult from Canoga Park, Calif., by Bruner and Moran.—*J. Bact., January,* 1949.

NUTRITION

Some Phases of Dairy Cattle Practice

H. A. GRAY, D.V.M.

Bowling Green, Kentucky

THE MODERN dairy cow is a man-made, artificial milk-producing machine of high efficiency. She is subject to more idiosyncrasies than perhaps any other species, because of continous improvement as a result of scientific breeding.

Consequently, there has been an ever-changing necessity for new and different types of medication, treatment, and nutrition. Some of the findings have not kept pace with the problems before us. Too, the field of nutrition for all species, human included, has just begun to unfold, so that we can see a little light in that direction.

NUTRITION DEFICIENCIES

Balance this against the fact that some soils are naturally deficient in minerals, and that we have created areas of deficiency in the soil by increased farm production necessitated by the feeding of a hungry world, with little thought of conservation. It is cause for wonder, then, that we have fared as well as we have.

Recognizing that the high-producing dairy breeds operate on a close margin between intake and output, with a small amount left over for maintenance and reproduction, we often wonder if our major troubles aren't primarily deficiencies—with dysfunction and disease being secondary. Perhaps this may be leaning a little too far in one direction, but it surely is logical "cracker barrel" thinking.

To substantiate this logic, I have in mind a dairy that milks about 150 cows. The owner became interested in soil fertility in order that he might produce better pastures and hay for these animals. After having many soil tests made, he added the necessary elements to the soil rather than feeding them to the animals directly. In less than three years, his pastures were greatly superior to those of his immediate neighbors—they are more luxuriant, have a good green color, and his hay crops are almost double those produced by his neighbors.

In addition, milk samples from his herd, when checked just recently, contained all the minerals, as against those of surrounding herds which contained little or none.

To retrace a bit, when looking at his first soil analysis, it was doubtful if he had any soil at all, because there was a lack of calcium, phosphorus, cobalt, iodine, copper, manganese, and several other minerals. Iron was the only exception.

What does all this mean to us? First, while the butterfat content of milk can be standardized, and is as indicated on the bottle cap, the food value can vary greatly. Second, to us, as veterinarians, this gives a better insight into the true physiology of some of our deficiency problems. These do not always meet the eye.

To discuss the various clinical and subclinical mineral and vitamin deficiencies would require a volume in itself. However, to persons who have never seen cobalt deficiency, or have not recognized it, I say, "The next time you find a cow that doesn't react to the ketone test but looks as though she has acetonemia, try an injection* of cobalt in 25 or 30 per cent dextrose." The lack of cobalt inhibits the rumen from synthesizing vitamin B and causes emaciation and digestive difficulties.

RUMEN TRANSFUSION

Whether the bovine stomach is one with four compartments, or whether the rumen, reticulum, and omasum are enlargements of the esophagus, is not for us to say. For all practical purposes, we believe that the rumen is the chief trouble-maker, and if this fermentation vat can be kept in good order the rest will generally follow suit.

While I do not wish to indicate that I oppose the use of certain drugs, I do hope to point out the over-all picture of what happens. That is, that the use of oils, sali-

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*Reports indicate that cobalt is more effective when fed than when injected intravenously.—ED.

cylates, various antiferments, and the sulfonamides not only inhibits those harmful bacteria whose activity we hope to curtail, but they also inhibit the action of many of the constructive bacteria which go to make up the normal flora of the rumen—those necessary for the fermentation and lytic action that brings about normal digestion of cellulose.

The picture before us may be of a natural deficiency, a deficiency caused by disease, or one induced by the use of drugs. Hence, it seems logical that good therapeutics will first correct the deficiency as effectively as possible, in order that we have a patient receptive to treatment, that is, with high natural resistance to carry on once we have inhibited the pathogenic bacteria or virus present. Failure to do so will mean fighting an uphill, and perhaps a losing, battle. It is not always possible to correct these conditions. Some animals become so run down that there is nothing left to work with; but we can advise for the balance of the herd and enhance the chances on our next case in that herd. Too, the administration of minerals and vitamins will give certain animals enough of a lift to bridge the gap. Initially, there may be but one definite deficiency but, since all are interdependent, it will not be long before a complex picture appears. Then it is necessary to supply all the elements for a time.

As an important aid along this line, Dr. W. D. Pounden and his associates at Wooster, Ohio, have suggested rumen transfusion by the introduction of a cud from a healthy animal into one with suspended rumination. We have found this rather difficult for two reasons. First, the average owner or herdsman will not stick his hand into the mouth of a cow and grasp a cud at intervals. Second, some flighty Jerseys just won't cooperate. As a modification, we get a quart or two of rumen contents from a local slaughterhouse and give it as a drench. The results are gratifying, and the cost is reasonable to anyone who has access to a slaughterhouse.

For impactions of the rumen, I use the rumen transfusion in conjunction with two or three cakes of yeast daily for about three days, plus plenty of water and some rumen stimulants. My choice is nux vomica and capsicum. This will generally start fermentation and restore the organ to normal. On some of the aggravated cases, we give small doses of lentin, repeating about three times in one day, then a day's rest, and repeat if necessary. Animals that fail to respond to this type of treatment have not responded to any other line of treatment used.

ANTIHISTAMINE DRUGS

The antihistamine drugs may have opened up an entirely new line of treatment; at least, they provide a very helpful adjunct to the older treatments. The extent of their present use offers many possibilities in septicemias, allergies, and food poisonings. I feel certain that many times they have provided the margin between a recovered animal and one that would have died had these drugs not been used. We have used antihistaminics in founder and septicemia, either from acute mastitis or pneumonia. In all instances, they seem to give a desirable lift and they stop toxemia. However, they must be injected intravenously and rather slowly to avoid definite nervous symptoms, twitching of the eyelids, and a tendency to back up. These symptoms have always been transitory, lasting about fifteen minutes, but it is wise to inform the owner before hand so that he will be prepared. Too, it is difficult to give a capsule or tablets while this nervousness prevails, sometimes causing a delay when one is in hurry. I now administer all other treatment first and then finish with the antihistaminics. It saves time.

We seldom see founder cases until definite signs of toxemia are shown, and then they are not in good condition for the shock of a rumenotomy. Of the various antihistamines, we have used more pyrabenzamine than any other. We administer 25 to 30 cc. mixed with sodium thiosulfate and nitrite in 500 cc. of 15 per cent dextrose solution. We leave the owner some sulfate and nitrite along with carminatives and stimulants, usually nux vomica. We also advise plenty of water which is contrary to usual treatment, but we feel that we can stop fermentation more easily than we can combat dehydration. With a proper fluid balance, the patient is a better risk. Ordinarily, the one injection seems to suffice, but the nitrites, sulfates, and dextrose require time to assist in the detoxification.

An item (quoted below) in a nutritional journal[1] seems to give a clear explanation of what happens in acetonemia. This may have appeared in some of the veterinary journals but, if so, I failed to see it.

"The liver participates in fatty acid metabolism by breaking long carbon chain fatty acids into four-carbon fragments which appear some times as acetone (the other two products being acetoacetic acid and betahydroxybutyric acid). The fatty acids are degraded, two carbons at a time, with resynthesis into four-carbon compounds in

[1]Nutritional adequacy in Health and Dietary Adjustment in Diseases. Vol. 1. The Wander Company, Chicago, Ill. (1949) :17-18.

random fashion. The four-carbon compounds occur in the blood and urine in starvation or in untreated diabetes mellitus, when fat provides much of the energy needs. These so-called acetone or ketone bodies have heretofore been regarded as harmful acids or by-products in fatty acid metabolism. In the light of recent investigations, however, these bodies are now known to be important products from the normal breakdown of fatty acids in the liver and kidneys. They are oxidized by muscle and other tissues and may furnish much of the energy required by the heart and other tissues.

"The ketone bodies show themselves in excess in the blood and urine following more than normal demands by the organism on fat metabolism. The acid ketone bodies require neutralization which calls on the alkali reserves. In the formation of the ketone bodies from the fatty acids, some considerable energy is liberated. Whether this energy is put to good use or not is not known.

"A certain balance between fat and carbohydrate intake is required for the complete oxidation of fat without the appearance of ketone bodies in the urine. According to the latest antiketogenesis concept, carbohydrates are preferentially oxidized. Ketone bodies accumulate only when the rate of formation exceeds their oxidation by peripheral tissues."

For practical purposes, what does all this mean? Merely this, that the presence of acetone or ketone bodies in the urine is a result of either a fat and carbohydrate imbalance, or starvation through diet or disease, and that these bodies are a part of the process of the breaking down of fats.

SOME PRESCRIPTIONS

Every practitioner has favorite or pet methods or prescriptions for certain diseases. Here are a few of ours.

Winter Dysentery.—Dissolve 12, 30-gr. sulfathiazole tablets in ½ pt. of "corn husker" solution, and add water to make 1 pt. Give 1 oz. three times a day. For us, this has been almost a specific. We believe that the cornhusker tends to stop intestinal osmosis and thus prevents the excess dehydration that accompanies this disease.

Teat Injuries.—Referring to teats that are mashed by other cows or are lacerated on the end, we like to inject some sulfanilamide in oil into the quarter, if possible, and dispense sulfa-and-urea solution for application on the injured teat to keep down infection and to promote healing. These are not milked, but allowed to rest and heal. After two to three weeks, we use a needle guide or a small hemostat to puncture the healed orifice, again injecting sulfanilamide in oil after the opening has been made. We advise stripping, but not complete milking, five or six times a day for three or four days. This has seemed to reduce the udder infections that follow the use of dilators or milk tubes. Though the quarter may be a little shy on production for a few weeks or even for the lactation period, in the following period the quarter is normal in appearance and production.

Milk Fever.—Reams have been written about milk fever, and we will not discuss it in detail. We add coramine, 10 to 15 cc., to the solution to prevent heartblock, aid respiration, and stimulate the central nervous system. We have used caffeine, benzadrine, adrenalin, and others, in the past, but now prefer coramine. We believe that relapses are less common with its use.

Metritis.—For metritis, we like stilbestrol, but we use small doses (25 to 35 mg.) to bring about uterine involution and then dispense a pound of an iodine powder (hiamine), to be given in the feed. Some of the acute cases require intravenous sulfonamides in addition. A sixty- to ninety-day breeding rest is ordered, depending on the severity. Stilbestrol in large doses has not been at all satisfactory in our practice.

CONCLUSION

In conclusion, we believe that deficiency plays an important role in the disease problems of the dairy cow; that the rumen transfusion is a ready means of restoring the normal flora of that organ; and that antihistamine drugs merit use in many diseases.

Purpura Hemorrhagica in Hogs.—Steffens (*Deutsche. Tierarztl. Wchnschr.*, abstr. in *Rec. Méd. Vét.*, Apr., 1949) describes cases of genuine purpura hemorrhagica in swine which he attributed to avitaminosis C, inasmuch as the trouble responded in a few days to vitamin C and D therapy, together with green forage. The symptoms were multiple petechiations of the skin and mucous membranes, epistaxis, anorexia, and depression. The temperature was normal.

Vitamin B_{12} in Pig Nutrition.—Pigs on a ration of corn and soybean oil meal (fortified with minerals and vitamins) utilized their feed better and gained an average of 17 lb. more up to 7 weeks of age when a concentrate rich in vitamin B_{12} was added to the ration, as compared with those on the same ration without this vitamin. Other factors present in the vitamin B_{12} concentrate possibly may have influenced the gains to some extent, but the investigators (of Michigan State College) feel that this vitamin should be given major credit for the superior gains.—*Science, Aug.* 5, 1949.

Urea and ammonium compounds appear to be unsatisfactory as protein substitutes in poultry rations.

EDITORIAL

The American Medical Association and Brucellosis in Animals

The article "Control and Eradication of Brucellosis in Animals," written by W. W. Spink, M.D., and published in the *Journal of the American Medical Association* for October 1, is essentially the report of the Committee on Public Health Aspects of Brucellosis, of the National Research Council, of which Dr. Spink is chairman. The publication of this paper (for abstract of paper, *see* p. 358 in this issue of the JOURNAL) and of the companion editorial comment in the AMA *Journal*, serves to emphasize the importance which is attached to this subject in medical circles.

A fact not to be overlooked in this connection is the conclusion reached by the Committee and reported by Dr. Spink: "The confusion which has existed is largely attributable to the ardent sponsorship of different plans by different veterinarians." This is a serious indictment against the veterinary medical profession, which has repeatedly proclaimed that its two chief purposes are to protect the health of man's animals, and to protect man himself against those diseases which he can acquire from his animals.

Whether the charge can be substantiated on a broad basis is somewhat beside the point at the moment. It has been made, and it has been widely publicized. If there could be any question regarding substantiation of this statement, we would have expected a challenge from the veterinarians who are also members of the National Research Council Committee—Drs. W. L. Boyd, L. M. Hutchings, and C. K. Mingle.

The indictment regarding confusion applies specifically to the various regulatory agencies and officials, and only indirectly to the practitioner. Indirectly, since the private practitioner has seldom been consulted in formulating disease control programs, but has been expected to support and implement the programs adopted. Indirectly, also, because the influence of the practitioner is usually felt only within the narrow limits of his practice.

The private practitioner is at a disadvantage in planning large-scale and long-time disease eradication programs. Each time he meets brucellosis it is on a specific rather than an abstract basis—the immediate problem is to stop losses, or at least reduce them to a degree which will permit his client to maintain the herd on a normal management basis and on an economically sound plane. It becomes difficult, therefore, to bear in mind that as a duty to the community it is necessary to plan for and to achieve eradication of the disease from all herds in that area. This is especially difficult when the interests of the client conflict with the long-range interests of the community.

The editorial in the *Journal of the American Medical Association* points out that "The commission feels that five fundamental steps are required to control and eradicate the disease, including diagnosis of the infection, eradication of the infectious agent, elimination of the susceptible host by immunization, isolation of infected animals and the use of therapeutic measures."

The prominent place accorded this discussion by the AMA testifies to the fact that it is high time for all veterinarians to agree upon some basic conclusions, and to bear them in mind in all dealings with livestock owners, with fellow veterinarians, and with physicians. The following are submitted as a starting list:

1) Eradication of brucellosis is desirable.
2) Clean herds are worthy of protection.
3) Brucellosis is spread primarily by infected animals.
4) The blood agglutination test is reliable to a practical degree, and is the best test now available.
5) Vaccination is an adjunct, not a substitute, for other control measures.
6) Prevention is more effective and less expensive than treatment.
7) No disease has been completely prevented or eradicated when only vaccination was used.
8) Infected animals can be controlled only when they have been located and identified.
9) Test and removal or slaughter of reacting animals must be the final step in any brucellosis eradication program.
10) Each herd must operate under a flexible pro-

gram which will use all natural advantages and avoid natural hazards.

The inclusion of therapeutic measures is avoided for the time being, since no treatment is known to be successful, and the only promising ones are so expensive that they are not economically feasible. We can only hope that the AMA editorial may prove to be a prophecy when it says ". . . the time may come when such methods of treatment may be available to veterinary physicians as they are to physicians who care for human beings."

Uniform Brucellosis Control Laws Needed

However much you believe in State's rights, there is a great deal to be said for a united federal effort to untangle the completely senseless snarl of state laws concerning brucellosis control, and the resultant anomalies and absurdities that have developed in reference to the shipment of cattle. Many of us have attended sales in which buyers from six or seven states were present, only a fraction of which were permitted by state regulations to buy cattle to ship home. There should certainly be a uniform code. The disease itself knows no boundaries, so certainly a concerted national effort to fight it makes very good sense.—*From an editorial, Jersey Bull., July 25, 1949.*

Is Encroachment a Result of Incompetence?

Is the growing use of medicine by laymen an indication that the veterinary service available is not economically comparable? The rapid strides made during recent years have increased the appreciation of, and the demand for, service by veterinarians. However, they also call for a cold and critical appraisal of the degree of professional sincerity and ability which is shown. The practicing veterinarian must not only be sincere and able, he must convince his clients that he possesses these attributes.

With the change from the horse practice of bygone days to the diversified practice and increased emphasis on preventive veterinary medicine and disease eradication, what has been gained? For most veterinarians, a personal satisfaction and an increased income from regular use of new and effective therapeutic agents for the treatment, control, and eradication or prevention of disease. This is reflected in higher income for the clients, larger food supplies, and better health for everyone.

Vindication for veterinary indifference to the public need and demand for veterinary medical service is highly improbable—selfish veterinary violation of public confidence and animal disease-control responsibility, in view of general public dependence upon veterinary science for social and economic protection, is not only unprofessional but unpardondable.

The person with money invested in livestock will take steps to protect his investment by disease control—with the help of his veterinarian when possible, but without such help when necessary. Each practitioner must convince his own clients of the value of his services. Failure to do so will encourage lay medication.—*L. R. Davenport, D.V.M., Illinois.*

How Many Veterinarians?

If there are now 13,500 veterinarians in this country, and it is admitted there is a current shortage of practitioners in some states and also in certain other professional fields, what total number of veterinarians should be developed and maintained to meet the full responsibilities of the veterinary profession in the public welfare? Is it 16,000, 20,000, 25,000, 30,000 or more? There seem to be honest differences of opinion, as I have seen all these figures mentioned.—*Dean H. D. Bergman, D.V.M., Iowa Veterinarian, July-August,* 1949.

Veterinary Education and Practice

Today's graduate gets over seven times as much formal education before he gets his D.V.M. degree, and there is probably more than seven times as much information available on veterinary and allied subjects now as there was fifty years ago.

Today's graduate may make a better veterinarian, but to do so he will have to learn about the practical side of the business.—*From an editorial, Iowa Veterinarian, July-August,* 1949.

The Senate appropriations committee has allocated $500,000 for plans and specifications for a foot-and-mouth disease research laboratory, according to *The Kansas Stockman* (Aug., 1949). Appropriations for construction and operation may come later—after the Secretary of Agriculture tells Congress how much the laboratory will cost and where it could be built.

Good stock, good feed, plenty of water, and dry litter are the most important factors in maintaining fall and winter egg production.—*World's Poult. Sci. J.*

CURRENT LITERATURE

ABSTRACTS

Antibiotics

The most promising antibiotics, based on information available in the literature, are: tyrothricin, penicillin, streptomycin, aureomycin, bacitracin, chloromycetin, and polymyxin. A review of the discovery, testing, and clinical possibilities of each of these is presented in concise, direct, and practical language.—[*The Development and Use of Antibiotics: C. P. Hegarty and S. F. Scheidy. Veterinary Extension Quarterly No.* 115. *School of Veterinary Medicine, University of Pennsylvania, Philadelphia. (June* 16, 1949) :60-67.]

Infertility in Heifers

Heifers commonly require more services per conception for the second calf than for any later one. This is particularly true if they are moved to a new herd during the last two months of pregnancy. The theory advanced by the author is that a barn-specific infection is involved, the animals developing an immunity to the particular infection to which they have been exposed since birth, but not to the type present in the new surroundings.—[*Temporary Sterility in Newly Purchased Cattle: F. G. Hoppe. Medl. Danske Dyrlaege,* 32, (1949): 134-147.]—J. Egehoj.

Pox Vaccination in Sheep

In Yugoslavia, sheep are vaccinated against pox with a vaccine prepared according to Borrel's method—lymph preserved with 3 per cent boric acid. Because this product deteriorates rapidly, the pox virus has been desiccated and held in vacuum tubes. The dried vaccine is said to retain full immunizing strength at 37 C. for three weeks.—[*E. Mitscherlich: A Dried Vaccine for Sheep Pox. Monatsch. f. Vet.,* 4, *July,* 1949.]—R. J.

Pneumoencephalitis Virus Modification

A decline in virulence of the virus of avian pneumoencephalitis (Newcastle disease) was observed after the twenty-first yolk sac passage, but the antigenicity did not decline until the seventy-second yolk sac passage. When administered by wing web puncture, this virus was as infectious as 10 to 15 times greater dosage injected intramuscularly. Available data do not justify conclusions regarding suitability of this yolk sac-adapted virus for use as an attenuated virus vaccine.—[*A Preliminary Report on the Modification of Avian Pneumoencephalitis (Newcastle Disease) Virus by Cultural Methods: J. R. Beach, R. A. Bankowski, and E. R. Quortrup. Cornell Vet.,* 38 (*October,* 1948) :341-357.]

Colostrum and Calf Scours

In three experiments, calves fed colostrum survived significantly longer than animals deprived of this substance. Mice, also, survived longer, if fed precolostrum, when injected intraperitoneally with lethal doses of *Escherichia coli* from infected calves.

Of 35 calves which died of white diarrhea, cultures of visceral organs presented bacterial growth as follows: *E. coli,* 29; *E. coli* plus *Proteus vulgaris,* 2; *E. coli* plus Streptococcus, 2; *Bacillus pyogenes,* 1; and *Bacillus enteritidis,* 1. Calves 6 to 8 weeks old often developed *Clostridium welchii* intoxication, and the anaërobic infections merit further study.—[*F. Blackemore: White Diarrhea of Calves. Berl. and Münch. Tierärztl. Wchnschr. (June,* 1949).]—R. J.

BOOKS AND REPORTS

Blakiston's New Gould Medical Dictionary

This is truly a new dictionary, having been planned from the beginning as a new entity, and designed to serve the practical needs of everyday use. More than 100 contributors participated in its preparation, and, because most of them are scholars and faculty members, this dictionary contains the new terms and also the changes in usage which have been generally adopted. This has been accomplished at no sacrifice of accuracy or authority.

The book incorporates all of the standard conveniences of modern dictionaries, and, in addition, a series of plates (some in color) and a variety of tables in an appendix. Among the latter, veterinarians will be pleased to note a table of veterinary doses. Material is arranged for easy reading, and pronunciation is simplified with a phonetic respelling, syllable division, and accents.

This complete and modern medical dictionary will pay for itself in time saved and information provided. Because using it will be a pleasure, it will be used frequently. Every veterinarian should own a copy as an important step in keeping abreast of progress in medicine and veterinary medicine.—[*Blakiston's New Gould Medical Dictionary. By Editors H. W. Jones, N. L. Hoerr, and A. Osol. Cloth Thumb index.* 1294 *pages.* 45 *plates of* 252 *illustrations* (129 *in color*). *The Blakiston Company, Philadelphia, Pa. Price* $8.50.]

Worms in Dogs

This is the name selected for the first of a proposed series of research papers to be issued from time to time by Gaines Dog Research Center. On its 5 pages are listed the principal facts regarding the four kinds of worms which commonly infect dogs—round-, hook-, tape-, and whipworms. Important rules for effective kennel control are listed. Discussion of treatment is limited to preparing the dog for worming, when not to worm, and naming the product of choice for each type of worm. "In order to be certain, a veterinarian should be consulted," is one of the concluding statements.—[*Worms in Dogs. By Gaines Dog Research Center, 250 Park Ave., New York 17, N. Y.* 1949.]

Arabian Horses

The horses bred by the Royal Agricultural Society of Egypt are the descendants of the authentic Arabian horses imported into Egypt from the Arabian peninsula. These horses assume great importance in breeding and preserving the authentic Arab horse, because most of the famous European studs of these animals have been devastated in each of the world wars.

Besides discussing the future of the Arab horse, and the influence of this blood on practically every other modern breed, the book gives details of the Society's scheme for the preservation of the pure blood lines, and lists the root mares and stallions, and the members of some of its outstanding families.—[*History of the Royal Agricultural Society's Stud of Authentic Arabian Horses. By Dr. A. A. Ashoub, Cairo, Egypt. Paper.* 136 *pages.* 1948.]

Scientific Chicken Feeding

The feeding of chickens is thoroughly discussed. Beginning with the first chapter, which describes the nutrients and their functions, proteins, carbohydrates, fats, minerals, vitamins, extractives, and water are listed. Under each of these major nutrients, all of the subdivisions are given, such as the amino acids, lipids, and saccharides, and their functions are described in some detail. Other chapters deal with digestion and absorption, metabolism, hormones, feed utilization, nutrition and reproduction, nutrient requirements, and nutritional diseases and vices. The last chapter mentioned will be of special interest and value to veterinarians diagnosing poultry diseases.

The last 100 pages are devoted to the more "practical" aspects of nutrition under the chapter headings of, nutritive properties of feedstuffs, metabolic antagonists and incompatibilities, individual feedstuffs, management and feeding, formulating diets, and useful information for formulating diets. This last-named chapter is a vast storehouse of information pertaining to the nutritive requirements of chickens during various growth stages, the protein, carbohydrate, mineral, and vitamin, composition and digestibility of feedstuffs.

The completeness with which the subject of feeding chickens is covered in this book, the conciseness of the presentation, and the readable style and understandable language used make it an excellent reference book for those directly concerned with poultry nutrition.—[*The Scientific Feeding of Chickens. By Harry W. Titus, Ph.D. Cloth. 253 pages. 2nd ed. The Interstate, Danville, Ill.,* 1949.]

Annual Review of Biochemistry

As in previous years, this book represents the work of some 30 authors who have reviewed, abstracted, and correlated in 23 chapters more than 4,700 papers which they list. Because each statement made represents the bare essential conclusions from many previous discussions and reports of experimental results, we will not presume to highlight any statement still more.

Among the chapters which many veterinarians will find interesting, and which may provide information on some of the unexplained conditions and responses observed in animals, are: two chapters on enzymes; three on amino acids and proteins; two on vitamins; and single chapters on chemistry of neoplastic tissue, mineral metabolism, chemistry of hormones, and chemistry of antibiotics. The information presented includes not only the biochemic nature of the product under discussion, but also its action in the body and its effect on other organs and structures and on the entire body.

For this reviewer, the book defies adequate description, but provides many hours of interesting and instructive reading.—[*Annual Review of Biochemistry. By Editors J. M. Luck, H. S. Loring, G. Mackinney. Annual Reviews, Inc., Stanford, Calif. Cloth.* 739 *pages. Price* $6.00.]

Choosing a Career

The opportunities, and the aptitudes required, in 84 professions are described in this book. To help in the selection of a profession, a self-analysis section and a guide to aptitudes are listed. Each of 84 professions is listed with the opportunity and the aptitude factors likely to be essential to success. For example, the profession of veterinary medicine is listed as offering good current and long-range possibilities; the aptitude factors required are scientific, physical, and manual. The opportunity for the physician is given as good but training facilities as inadequate; the aptitude factors required are scientific, social, and manual.

Under each profession are given the vital statistics, the future, where prospects are best, educational and licensing requirements, personal characteristics, the work done, the salary or income that may be expected, the advantages and disadvantages to the profession, and the material and sources one should contact for more information. Since this book is designed to assist in the selection of a profession, it probably is not of vital interest to veterinarians. However, it gives a fair review of many professions and should be helpful in the selection of life's work.—[*Your Career. By E.*

Cunningham and L. Reed. Simon and Schuster, New York, N. Y. 1949. *Price* $1.00.]

American Foundations

This book is an annotated and classified guide of 899 American foundations. These foundations have, for several decades, provided "one of the best channels for the excercise of private initiative in the interests of the public welfare." They are nongovernmental, nonprofitmaking, and, hence, free of "the entanglements of both government and business."

The foundations are considered under five classifications: (1) those, other than community trusts, concerned with financial assistance to other organizations; (2) community trusts; (3) those concerned with fellowships, scholarships, prizes, awards, or grants to individuals; (4) those concerned with the direct conduct of programs of research or service; and (5) those which could not be classified into the above categories because they released little or no information.

Foundations are listed alphabetically, and are cross-indexed. Besides the name and address, the listing includes date established, donors, purpose, special conditions, methods of operation, financial data (when available), and officers including trustees and directors.—[*American Foundations and Their Fields. 6th ed. Edited by W. S. Rich and Neva R. Deardorff. Cloth. 284 pages. Raymond Rich Associates, 30 East Twenty-second Street, New York 10, N.Y.* 1948.]

Grass

Written by more than 150 men and women who are agronomists, economists, farmers, teachers, military men, students of nutrition, husbandmen, foresters, entomologists, agrostologists, engineers, workers in conservation, and ecologists, this 1948 Yearbook of the U. S. Department of Agriculture is a long-delayed recognition of the value of grass to America and the world.

The editor's preface indicates that this is really a "first word" on this subject. Emphasis, throughout its chapters, is on livestock and soils and conservation.

Beginning with the general aspects of the subject, those which make it important to all people everywhere, the book proceeds into the more technical and more specific problems of growing and using grasses and legumes.

The importance of grass and forage crops in livestock production, in soil conservation, and in a permanent agriculture upon which human food supplies depend, is traced through the book. Veterinarians should read it to gain a better appreciation of the importance of their own work in keeping livestock healthy, since the feeding of unlimited amounts of forage and cereal grains can not be profitable unless the animals themselves are kept healthy, free from parasites, and thrifty.—[*Grass: The Yearbook of Agriculture, 1948. Edited by Alfred Stefferud. Cloth. 892 pages. Illustrated. U. S. Government Printing Office, Washington, D.C.* 1948. *Price* $2.00.]

Film and Education

The book presents a comprehensive survey of the present and potential uses for educational motion pictures. Its five parts deal with various phases of the subject: Part I, The Nature of the Educational Film; Part II, The Educational Film in the Classroom; Part III, The Educational Film Outside the Classroom; Part IV, The Educational Film Abroad; Part V, Administrative Problems and Practices. They contain 37 chapters, each by a separate author.

Chapter 21, in Part III, deals with The Film in Medical and Nursing Education. Some phases of the discussion can be applied directly to the use of films by associations and colleges of veterinary medicine.—[*Film and Education. Edited by G. M. Elliott. Cloth. 597 pages. Philosophical Library, 15 East 40th St., New York 16, N.Y.* 1948. *Price* $7.50.]

Acids, Bases, and Nonaqueous Systems

Our knowledge of salts, acids, and bases is founded on information which has been accumulated over a period of some 700 years. In this booklet, which is the twenty-third annual Priestly lecture of Pennsylvania State College, the author briefly traces this history in the opening chapter. Then, he dwells at greater length on the present concepts of acid-base relationships in chapter two. He then discusses the nitrogen system, the hydronitrogens, and the high temperature systems. The concluding statement sounds the keynote of the discussion: I would still prefer to apply the yardstick of utility to any theoretic concept, rather than to argue needlessly concerning presumed and accepted shortcomings of any one particular theory.

An accurate and a scholarly review of the history of this branch of chemistry, presented to show that, while scientific facts do not change, the interpretations of their meanings are subject to change.—[*Acids, Bases, and Nonaqueous Systems. By Ludwig F. Audrieth. Paper. 66 pages. Phi Lambda Upsilon and Dept. of Chemistry, Pennsylvania State College, State College, Pa. April,* 1949.]

Tuberculosis Isolation and Differentiation

Methods of isolation of tubercle bacilli are discussed in detail, together with methods of differentiation between the three types, especially on primary cultures. Glycerin stimulates the growth of human and avian types, but inhibits development of the bovine type on primary culture. Sulfanilamide, acridine dyes, and some of the antibiotic agents were used in connection with a solid egg medium. Experimental reports on inhibition of complicating bacteria and molds are listed.—[*De Differentiatie Door Cultures en het Isoleren van de Tuberkelbacillen op Gestolde Eimilieu's. By Dr. A. Devos. Paper.* 111 *pages.* 1949.]

THE NEWS

United States and Canadian Veterinarians Honored at 14th International Congress

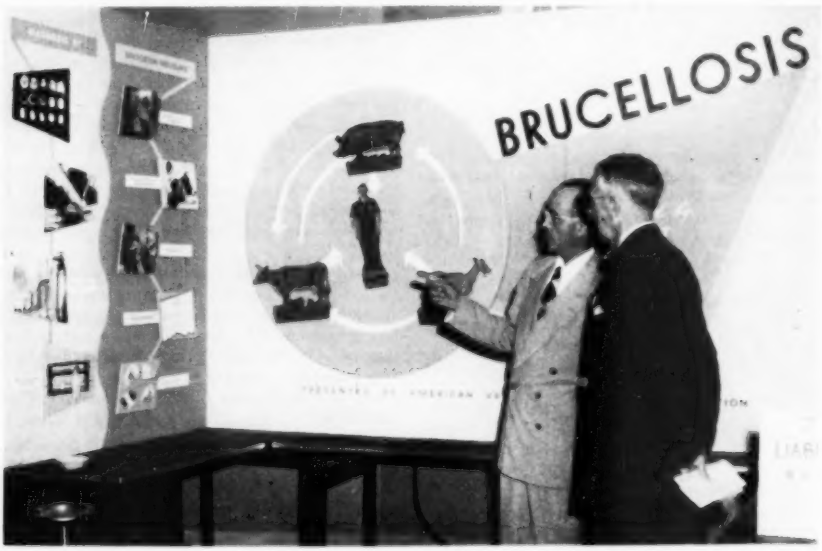
The Diploma of Honorary Associateship of the Royal College of Veterinary Surgeons was conferred upon Dean W. A. Hagan, New York State Veterinary College, Cornell University, Ithaca; Dean R. A. Kelser, School of Veterinary Medicine, University of Pennsylvania, Philadelphia; Dr. B. T. Simms, chief, U. S. Bureau of Animal Industry, Washington, D. C.; Dr. A. L. MacNabb, principal, Ontario Veterinary College, University of Toronto, Guelph; and Dr. C. A. Mitchell, Dominion animal pathologist and chief, Division of Animal Pathology, Science Service, Dominion Department of Agriculture. The diplomas were conferred by Professor T. Dalling at the Central Hall, Westminster, on Aug. 12, 1949, to mark the occasion of the holding of the 14th International Veterinary Congress in London. Veterinarians from France, Australia, Switzerland, The Netherlands, South Africa, Sweden, and Denmark were also honored.

Code of Ethics Exhibit Available for Fall and Winter Meetings

The AVMA code of ethics exhibit, shown at the San Francisco convention in 1948 and subsequently at several state and regional meetings, is available for display at meetings of constituent and local associations.

Organized groups of veterinarians who would like to use this exhibit may obtain it by writing to the AVMA office. It depicts telephone directory listings and professional cards of contrasting ethical and unethical types, and centers attention on what the individual veterinarian and constituent associations can do to encourage higher standards of ethics throughout the profession.

It is a self-contained, ready-to-use display that can be set up in one minute. The extended width is 8 ft., but the side panels may be set



AVMA Brucellosis Exhibit at the Detroit Convention

Dr. B. J. Killham, Lansing, Mich., and Lieut. Col. Neil O. Wilson, V.C., discussing the exhibit in Detroit. Originally shown at the American Medical Association convention in Atlantic City in June, 1949, it was shown again at the American Public Health Association meeting in New York City, October 24-28. It has also been shown at the Michigan State Fair, Indiana Medical Society, and at the International Dairy Exposition in Indianapolis.

State veterinary medical associations may obtain this exhibit and the AVMA rabies exhibit for display at meetings in their state. Also available are panel exhibits for county fairs and similar lay meetings (see JOURNAL, Aug., 1949:128).

forward on an angle so that the exhibit can be fitted into a space as small as 4 ft. wide and 3 ft. deep. The height is 6 1/2 ft.



The code of ethics exhibit.

The AVMA will pay shipping charges to the meeting headquarters, and the using association is asked to bear charges for the return shipment to Chicago. Total shipping weight of the exhibit is 250 lb.

WOMEN'S AUXILIARY

Kansas City Auxiliary.—Members of the Auxiliary to the Kansas City Veterinary Medical Association enjoyed an evening of well-planned social activities at their regular monthly meeting on Sept. 20, 1949, at the Hotel President.

s/MRS. EARL MUNDELL,
Corresponding Secretary.

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Northern Illinois Auxiliary.—The fall meeting of the Women's Auxiliary to the Northern Illinois Veterinary Medical Association was held at the Hotel Faust in Rockford on Sept. 28, 1949. The program included luncheon at Schrom's, a cocktail hour and the banquet at the Hotel Faust.

s/MRS. A. S. LEGNER, *Secretary.*

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Mrs. Coughlin, President-Elect.—Mrs. Dennis Coughlin, 1713 Yale Ave., Knoxville, Tenn., is well equipped, through training and experience, to assume the responsibilities of auxiliary leadership. After graduating from college, Mrs. Coughlin taught nutrition and food, and physiological chemistry at the University of Tennessee. In 1925, she married Dr. Dennis Coughlin; their son, Dennis, Jr., is now a pre-medical student at the University of Tennessee.

Mrs. Coughlin has held numerous offices in civic organizations and has served as a member of the Board of Directors of the Knoxville Y.M.C.A. She has also worked with the A.A.U.W. and the League of Women Voters. She helped organize the Women's Auxiliary to the Tennessee State Veterinary Medical Association, and, having served the Women's Auxiliary to the AVMA as a member of the Executive Board, is familiar with the various phases of auxiliary work.



Mrs. Dennis Coughlin, president-elect, Women's Auxiliary to the AVMA.

In fulfilling the duties of her office, Mrs. Coughlin will contact an officer in each state, provincial, or regional auxiliary. She will help develop plans for a state auxiliary where one is needed, and will outline plans and suggestions for those already functioning.

s/(MRS. V. H.) FLORENCE MILLER, *President.*

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X, Section 2.

First Listing

BELL, CAREY L.
P.O. Box 1191, Durham, N. Car.
D.V.M., Alabama Polytechnic Institute, 1917.
Vouchers: J. H. Brown and C. D. Van Houweling.

BLAKE, JOHN E.
306 Windham Rd., Willimantic, Conn.
D.V.M., Ontario Veterinary College, 1935.
Vouchers: E. Laitinen and C. D. Van Houweling.

CASTLEBERRY, MERIDA W.
Veterinary Branch, Ft. Worth QM Depot, Ft. Worth, Texas.

D.V.M., Texas A. & M. College, 1941.
Vouchers: H. M. Deane and B. D. Fremming.

CONBOY, JOSEPH R.
Pocomoke City, Md.
D.V.M., New York State Veterinary College, 1932.
Vouchers: A. L. Brueckner and I. M. Moulthrop.

HAMILTON, JOHN G.
Box 124, Clinton, N.J.
D.V.M., Ontario Veterinary College, 1936.
Vouchers: J. R. Porteus and C. D. Van Houweling.

KESTEVEN, KEITH V. L.
c/o FAO of United Nations, 1201 Connecticut Ave., N.W., Washington, D.C.
B.V.Sc., University of Sydney, 1939.
Vouchers: C. H. Thompson, Jr., and J. A. McCallam.

LOOMIS, LADD N.
2432 Cavanaugh Rd., Lansing, Mich.
D.V.M., Michigan State College, 1941.
Vouchers: R. A. Runnells and H. J. Stafseth.

MARTINEZ, CARLOS R.
Quinta "Marilina", Avenida La Vega, Calle Stolk, El Paraiso, Caracas, Venezuela, S. A.
D.V.M., Veterinary High School, Cordoba, Spain, 1918.
Vouchers: C. E. Muskus and A. Bautista B.

SAPRAUSK, JOHN
840 First Ave., Chula Vista, Calif.
D.V.M., Veterinary College of Hanover, Germany, 1946.
Vouchers: E. L. Maurer and N. W. Burg.

SKOVAJSA, VINCENT, D.V.M.
659 Landan St., Joliet, Ill.
D.V.M., Veterinary College, Brno, Czechoslovakia, 1933.
Vouchers: W. S. Buchanan and A. R. Kincaid.

SORDO, LOUIS A.
4910 Bethesda Ave., Bethesda 14, Md.
D.V.M., Alabama Polytechnic Institute, 1936.
Vouchers: A. L. Brueckner and C. D. Van Houweling.

TIMMONS, R. C.
Box 169, Havre, Mont.
D.V.M., Kansas City Veterinary College, 1913.
Vouchers: H. F. Wilkins and A. M. Jasmin.

Second Listing

ARDIEL, JAMES B., Worthington Veterinary Hosp., Worthington, Minn.

ARMSTRONG, ALBERT B., 426 W. North Ave., Baltimore 17, Md.

CARTER, GEORGE S., 915 Howard Ave., Billings, Mont.

CORNWELL, JAMES I., 123 Biltmore Ave., Asheville, N. Car.

DROVER, JACK, Thorndale, Ont.

FERRARO, COSIMO, 1406 E. 75th St., Chicago, Ill.

FOLEY, JOHN T., Curtiss Candy Co. Farm, Cary, Ill.

FREDERICK, D. C., 4310 Almeda St., Houston, Texas.

GANDIER, J. C. C., 120 King St., Welland, Ont.

HANDER, RAYMOND, Box 446, Childress, Texas.

HANSMIRE, F. W., 1509 G. St., Fairbury, Neb.

HARTMAN, ROBERT H., Box 561, Victoria, Texas.

HEGER, JOSEPH W., Curtiss Candy Co. Farm, Cary, Ill.

HERLIHEY, GEORGE J., 2867 N. Clark St., Chicago 14, Ill.

HOLBERT, R. W., Box 723, Elko, Nev.

HULTS, CHARLES E., 37 Blanchard Ave., West Rutland, Vt.

KALTWASSER, A. C., P.O. Box 861, El Campo, Texas.

LANAS, J. JORGE FERNANDEZ, Calle Piura No. 560, Miraflores, Lima, Peru.

NIETO, EDUARDO CAMPOS, 6 Nogal 170, Mexico, D. F.

PHILLIPS, B. B., Box 1871, Brownsville, Texas.

SIEIRO, FRANCISCO, Uruguay N. 115, Piso 4to., Depto. N., Buenos Aires, Argentina.

1949 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Iowa State College

CUTLER, JAMES H., D.V.M.
4840 Harriet Ave., Minneapolis, Minn.
Vouchers: F. K. Ramsey and H. L. Foust.

LUSTIG, PETER, D.V.M.
10 West Pine St., Stockton, Calif.
Vouchers: M. A. Emmerson and G. R. Fowler.

PAULSON, QUENTIN S., D.V.M.
Grantsburg, Wis.
Vouchers: G. R. Fowler and E. N. Liljeberg.

SCAMMON, REGINALD J., D.V.M.
Rock Port, Mo.
Vouchers: C. H. Covault and R. Matkin.

Michigan State College

JONES, LAURENCE J., D.V.M.
2216 G. St., Bellingham, Wash.
Vouchers: M. D. McKenzie and N. Konnerup.

Second Listing

Alabama Polytechnic Institute

WILLIS, BENJAMIN R., JR., D.V.M., Greenwood, Fla.

Iowa State College

BREDAHL, FRANKLIN W., D.V.M., Exira, Iowa.

POPE, EDWARD P., D.V.M., Y.M.C.A., Elgin, Ill.

Kansas State College

DARLING, IRVIN A., D.V.M., 1101 Bluemont, Manhattan, Kan.

Michigan State College

DEVEREAUX, EARL H., D.V.M., Box 11, Chesaning, Mich.
KUZEWSKI, RAYMOND A., D.V.M., 448 N. Monroe St., Monroe, Mich.
RACHWALSKY, IRENE, D.V.M., 3240 Henry Hudson Pkwy., New York 63, N.Y.
SCHREIBER, LEONARD, D.V.M., 4019 Pasadena, Detroit 4, Mich.
SHEPHERD, LEONARD A., D.V.M., Box 91, Avilla, Ind.

Ohio State University

EGLIT, DAVID, D.V.M., 6446 N. Greenview Ave., Chicago, Ill.

Ontario Veterinary College

WARDLAW, WALTER L. A., D.V.M., 75A Edinburgh Rd., Guelph, Ont.

University of the Philippines

FERNANDEZ, DAMASO M., D.V.M., 21 Kamuning Rd., Quezon City, P.I.

AMONG THE STATES AND PROVINCES

California

Los Angeles Livestock Inventory.—As of June 30, 1949, the approximate livestock inventory for Los Angeles County is given at almost $69 million. Of this, the importance ranks in the following order of decreasing value: dairy cattle, $40 million; poultry, 9; horses and mules, 9; beef cattle, 5; chinchilla, 2; hogs, 1.75; rabbits, 1; with goats and sheep ahead of mink.

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Dr. Britton to Manage Thoroughbred Research Center.—Dr. J. W. Britton has been chosen to manage the Guiberson Thoroughbred Farm clinic and research center Northeast of Sacramento. Well known throughout the West for his work with Thoroughbreds, Dr. Britton will conduct private research at the model clinic, now under construction, and will also act as consultant to the new School of Veterinary Medicine at the University of California at Davis.—*The California Wool Grower, September* 6, 1949.

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Tick Fever.—Outbreaks of tick fever among cattle on two separate premises in the Sweetwater Valley of San Diego County, near the international border, were reported during August, 1949, by Dr. E. R. Quortrup, director of the San Diego County Livestock Department. The affected ranches have been quarantined and the cattle are being dipped.

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Up-to-Date Cattle Rustling.—The television version of cattle rustling will have to be revised. The galloping rustlers of former times were no more like the modern breed than the bandit and the ghoul. The rustlers of 1949 just truck a butcher's outfit to the ranch, shoot down a couple of yearlings, and bring back only the red meat, and if caught, they have their day in court. At Ukiah, Mendocino County, when Judge Lilburn Gibson sent three rustlers to San Quentin for doing it *a la mode* on a Potter Valley cattleman's ranch, the sentence was called "gratifying" by the cattleman's protective society.

Connecticut

Fairfield County Association.—The regular meeting of the Fairfield County Veterinary Medical Association was held at the Norwalk Shore and Country Club, East Norwalk, on Oct. 12, 1949.

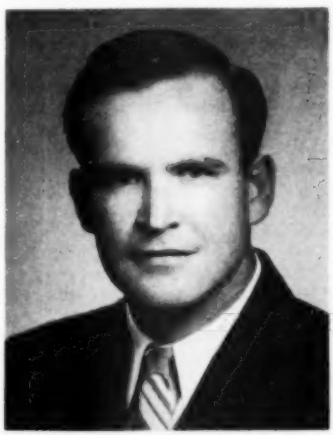
S/WILLIAM R. LEGGETT, *Secretary.*

District of Columbia

Science Writer Dies.—Dr. Frank Thone, 58, of Washington, D.C., died of a heart ailment on Aug. 25, 1949. Widely known in the field of science writing, Dr. Thone had served as biology editor of Science Service and *Science News Letter* since 1924.

Florida

Dr. Batte Appointed to Staff of Experiment Station.—Dr. Edward Batte (TEX '49) has been appointed to the staff of the Florida Agricultural Experiment Station, University of Florida, Gainesville, as associate parasitologist. Dr. Batte will work with Dr. Leonard E. Swanson, head of the Experiment Station Animal Parasite Laboratory,



Dr. Edward G. Batte

in investigations of methods of control of the liver fluke of cattle.

This appointment was made possible through a Swift grant-in-aid fund for research on liver fluke diseases of cattle.

S/KARL R. OWENS, *Resident Secretary.*

Georgia

Short Course.—The fifth annual short course for veterinarians was held at the Abraham Baldwin Agricultural College and Georgia Coastal Plain Experiment Station, Tifton, Sept. 12-13, 1949. The program follows.

Dr. Paul Piercy, School of Veterinary Medicine, Athens: "Anaplasmosis."

Dr. I. W. Moranville, veterinary director, Vitamineral Products Corp., Peoria, Ill.: "Mineral Therapy."



Some of the speakers who participated in the fifth annual short course for veterinarians at Tifton. Front row, left to right—Drs. E. F. Thomas, Wm. Jackson, and Peter S. Roy. Second row—Drs. M. G. Fincher, Wm. L. Sippel, C. W. Barber, and Dean Tom Cordell.

Dr. M. G. Fincher, New York State Veterinary College, Cornell University, Ithaca: "Sterility of Cattle," "Laboratory on Sterility Problems", and "Modern Mastitis Therapy."

Drs. Wm. Jackson and C. W. Barber, School of Veterinary Medicine, Athens: "Practitioner's Laboratory Tests."

Dr. E. F. Thomas, School of Veterinary Medicine, Athens: "Large Animal Practice Problems."

Dr. Peter S. Roy, Jacksonville, Fla.: "Small Animal Practice Problems."

Dr. J. F. Bullard, Purdue University, West Lafayette, Ind.: showed the Motion Picture "Swine Surgery" from the AVMA film library.

Dean T. M. Cordell, director of adult education and dean of the Abraham Baldwin Agricultural College, and Dr. W. L. Sippel, Department of Animal Diseases, Georgia Coastal Plain Experiment Station, served as co-chairmen of the program.

S/W. L. SIPPEL, *Chairman.*

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Growth of Livestock Industry.—Evidence of the increasing importance of Georgia's expanding livestock industry is Governor Talmadge's recent appropriation of $50,000 to establish a laboratory at the Coastal Plains Experiment Station at Tifton for the study of hog and cattle diseases. Located in the heart of Georgia's heaviest livestock-producing area, it will be comparable to the Department of Agriculture laboratory at Gainesville, which does research on poultry diseases.

S/W. L. SIPPEL.

Illinois

Symposium on Plasma Proteins.—Dean Robbert Graham and Drs. Jesse Sampson, Norman D. Levine, and Roger P. Link, of the staff of the University of Illinois College of Veterinary Medicine, attended the symposium on plasma proteins held at Chicago, Sept. 23-24, 1949, under the auspices of the University of Illinois College of Medicine.

The Symposium was sponsored by the Robert Gould Research Foundation, Inc., a nonprofit organization which supports research in human and animal nutrition through grants-in-aid at several universities.

Among the papers presented were "Studies on the Rates of Turnover of Plasma Proteins in Man," "The Effect of Dietary Proteins on the Synthesis of Plasma Proteins," "Some Relationships Between Diet, Protein Stores, and Plasma Proteins," "Hypoproteinemia Due to Protein Starvation," and "Protein Metabolism in Relation to Resistance to Infection."

S/NORMAN D. LEVINE.

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Eastern Association.—The Eastern Illinois Veterinary Medical Association met at the Hotel Tilden Hall, Champaign, on Sept. 29, 1949. Dr. John Dick showed a film on "Newcastle Disease," and Dr. R. D. Hatch was moderator of a discussion on "Large Animal Practice," in which all participated.

S/G. E. HUNT, *Secretary.*

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Veterinarians and Health Officers to Meet—In the interests of public health, and for the protection of livestock economy, veterinarians and public health officers will meet in joint session at the Abraham Lincoln Hotel Ballroom on Nov. 16-17, 1949, to discuss animal-human disease control problems.

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Dr. W. J. McIntosh, Mt. Carmel, delivered these triplet calves, 2 heifers and 1 bull, from the Western White Face heifer on Aug. 1, 1949. The sire was an Aberdeen-Angus. The cow and her calves are progressing normally.

Northern Illinois Association.—The fall meeting of the Northern Illinois Veterinary Medical Association was held Sept. 28, 1949, in the Hotel Faust, Rockford. The program follows.

Dr. H. L. Bryan, College of Veterinary Medicine, University of Illinois, Urbana: "Demonstration of the Ring Test."

Dr. Roy A. Thompson, superintendent, Division of Animal Industry, Springfield: "Remarks."

Dr. S. H. McNutt, Department of Veterinary Pathology, University of Wisconsin, Madison: "Infertility of Dairy Cattle."

Dr. Greg Raps, Dairy Genetics Inc., Des Moines, Iowa: "The Relationship of the Practicing Veterinarian to His Local Breeding Association."

Officers elected at the meeting are Drs. C. L. Smith, Sycamore, president; H. E. Held, Freeport, president-elect; and A. A. Legner, Sandwich, re-elected secretary-treasurer.

s/A. A. LEGNER, *Secretary.*

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Nutrition Conference.—The first nutrition conference for veterinarians held in Illinois, under the joint sponsorship of the Illinois State Veterinary Medical Association and the Illinois Feed Association, was acclaimed an outstanding success. Total attendance exceeded 200, of which 135 were veterinarians from Illinois and six other states.

The outstanding one-day program, presented in the Blue Ribbon Hall of the Pabst Brewing Company in Peoria, on Sept. 1, 1949, was presented exactly on schedule. Lunch was served in the auditorium with a minimum of delay. Those attending displayed close attention throughout the day to the 16 presentations, and stayed until the program was completed.

Both Dr. J. G. Hardenbergh and Mr. Walter Berger, representing the national veterinary medical and feed associations, commended the Illinois associations for their leadership in sponsoring the conference and expressed the hope that other states would follow the example set in Illinois.

Iowa

Fayette County Society.—Twenty veterinarians and their wives from ten counties attended the dinner meeting of the Fayette County Veterinary Medical Society at the American Legion Hall, Strawberry Point, Sept. 20, 1949.

Dr. R. A. Packer, Iowa State College, Ames, gave an illustrated lecture on "Bovine Mastitis and the Use of Antibiotic Agents." Dr. F. C. O'Donnell, Strawberry Point; L. Proctor, Oelwein; and Donald E. Moore, Decorah, led the discussion.

A resolution was adopted opposing the national control of medicine through compulsory health insurance, copies to be sent to the President of the United States, and senators and congressmen from Iowa.

Officers of the Association are Drs. G. E. Brandt, Garnavillo, president; and Donald Moore, Decorah, secretary-treasurer.

s/DONALD MOORE, *Secretary.*

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East Central Iowa Society.—There were 55 veterinarians from 17 counties in attendance at the East Central Iowa Veterinary Medical Society dinner meeting at the Hotel Roosevelt, Cedar Rapids, Sept. 15, 1949. Dr. Chas. W. Brown, Des Moines, veterinarian in charge, U.S. Bureau of Animal Industry, presented a paper on "The Veterinarians' Contribution to the Prosperity of the Farmer." Dr. H. U. Garrett, Des Moines, chief, Division of Animal Industry, Iowa State



Speakers at Illinois Nutrition Conference for Veterinarians

Left to right—Dr. Robert Graham, Dr. J. V. Lacroix, Lyman Peck, L. E. Card, J. L. Krider, Walter Jones, Dr. Paul R. Cannon, Dean Clark, H. L. Wilke, Dr. R. M. Carter, M. B. Gillis, H. J. Gramlich, J. E Hunter, Gustav Bohstedt, Walter Berger, Dr. L. A. Dykstra, Dr. J. G. Hardenbergh.

Department of Agriculture, discussed "The Need for Coöperation of Veterinary Practitioners in Regulatory Work." Dr. Paul C. Bennett, diagnostic laboratory, Iowa State College, Ames, spoke on "Tests Made to Detect Swine Diseases." Dr. John Bryant, Mount Vernon, presented a paper "Infectious Pneumonia of Swine."

The following officers were elected: Drs. Robert E. Savage, Monticello, president; James E. Riggenbach, Williamsburg, vice-president; Wayne H. Thompson, Earlville, secretary-treasurer.

s/WAYNE H. THOMPSON, *Secretary.*

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Cedar Valley Association.—Forty-three veterinarians, representing 15 counties, attended the Cedar Valley Veterinary Association dinner meeting at Black's Tea Room, Waterloo, Sept. 12, 1949. Dr. Joe W. Giffee, Cedar Rapids, in charge of hog disease control, U.S. Bureau of Animal Industry, presented a paper on "Hog Cholera and Complicating Diseases." Dr. L. L. Boxwell, Cedar Falls, discussed "Penicillin in the Treatment of Acute Erysipelas of Swine."

s/F. B. YOUNG, *Secretary.*

Kentucky

Dr. Bruner to Teach at New York Veterinary College.—Dr. D. W. Bruner, research worker at the Agricultural Experiment Station of the University of Kentucky, Lexington, for the past twelve years, except for army service in World War II, has accepted the position as head of the bacteriology department at the New York State Veterinary College, Cornell University, Ithaca. In his new position, Dr. Bruner will divide his time between teaching and research.

At the University of Kentucky, Dr. Bruner worked under Dr. F. E. Hull, head of the Department of Animal Pathology, on virus abortion, jaundiced foals, Salmonella abortion, and other animal diseases. Many of Dr. Bruner's reports, on which he collaborated with other research workers at the Experiment Station, have been published in the JOURNAL (Icteric Foals, *112,* (1948) :440-441; Salmonella Pullorum in a Dog, *114,* (1949) :29; Pseudomonas Aeruginosa from an Aborted Equine Fetus, *111,* (1949) :292; A Swine Erysipelas Outbreak in Turkeys, *111,* (1949) :438; and others.)

Manitoba

Canadian Association.—The first annual meeting of the Canadian Veterinary Medical Association was held at the Fort Garry Hotel in Winnipeg, Sept. 21-23, 1949. Dr. C. P. Zepp, Sr., president of the AVMA, brought the greetings and best wishes of the American Veterinary Medical Association, to which President J. F. C. Anderson, of the Canadian Association, responded.

Others who spoke at the opening session were Drs. T. Childs, veterinary director general of Canada; C. A. Mitchell, chief animal pathologist of Canada; Gustave Labelle, dean, School of Veterinary Medicine, Quebec; and A. L. MacNabb, dean, Ontario Veterinary College.

Presidents of provincial associations represented at the meeting were Drs. O. S. Nordland, Prince Edward Island; E. H. Sproston, British Columbia; J. E. Hendry, Nova Scotia; J. Gordon Anderson, Alberta; J. T. Akins, New Brunswick; N. D. Christie, Saskatchewan; J. M. Vielleux, Quebec; O. McGuirk, Manitoba; and D. J. McLellan, Ontario.

The scientific program follows.

Dr. F. Schofield, Ontario Veterinary College: "The Status of European Veterinary Colleges Since the Last War."

Dr. J. S. Fulton, Saskatoon: "Viruses and Virus Diseases."

Dr. C. A. Mitchell, Hull: "Studies Concerning Tuberculin."

Dr. J. Henderson, Ontario Veterinary College: "Breeding Problems in South American Cattle."

Those in attendance at the annual meeting enjoyed an excursion to the Kelburn stock farm and a banquet at the hotel.

Officers of the Association are Drs. E. F. Johnston, Carp, Ont., president; L. A. Gendreau, Sherbrooke, Que., vice-president; and Orlan Hall, Ottawa, Ont., secretary-treasurer.

s/ORLAN HALL, *Secretary.*

Massachusetts

Veterinarians Participate in Farmers' Field Day.—At the fourth annual Worcester County Farmers' Field Day, held at the Clover Hill Farm in Dudley, Aug. 17, 1949, the Worcester County Veterinary Medical Association demonstrated modern anesthesia, dehorning by nerve blocking, spinal and local anesthesia, and artificial insemination.

A large and enthusiastic audience attended the demonstrations and viewed the exhibits of panels from the AVMA posters and from the American Foundation for Animal Health, and charts and posters from the University of Massachusetts Extension Service regarding mastitis.

Veterinarians representing the Worcester County Veterinary Medical Association were Drs. George W. Abbott of Grafton, Donald Hey of Oxford, and W. C. Maker of Shrewsbury.

s/L. A. PAQUIN, *Resident Secretary.*

Michigan

Newness of the Fur Farm.—The first successful fur farm in the United States was a Silver Fox farm established at Muskegon, Mich., in 1914. The founder was the late Frank F. Tuplin, who also established fur farms at Grand Rapids, Traverse City, and Houghton, Mich., and at Big Bear, Calif.

Minnesota

Beaver Farming.—In the August JOURNAL, p. 93, it was stated that a Canadian fur farmer is making the first known attempt to raise beavers in captivity. Mr. Shaler E. Aldous, in charge, Survey and Investigations, U.S. Department of the Interior Fish and Wildlife Service, Washington, D.C., writes us that Mr. Charles Tilden of Hill

City, Minnesota, has been successfully raising beavers in pens for twenty-five years.

Mississippi

North East Association.—The North East Mississippi Veterinary Medical Association held its bi-monthly meeting and annual clinic at Dr. W. L. Stroup's Veterinary Clinic in Corinth.

The clinic was well attended by members of the Association, visitors from other parts of the state, and representatives from Alabama, Illinois, Kentucky, and Tennessee. Dr. W. M. Coffee, La Center, Ky., president-elect of the AVMA, was among those who attended the meeting.

s/P. S. LIVINGSTON, *Secretary.*

Missouri

Kansas City Association.—The regular monthly meeting of the Kansas City Veterinary Medical Association was held Sept. 20, 1949, at the Hotel Continental. Dr. Lee Railsback, Ellsworth, Minn., spoke on "Swine Obstetrics."

s/E. L. MUNDELL, *Secretary.*

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Southeast Association Fall Meeting.—The fall meeting of the Southeast Missouri Veterinary Medical Association was held on Sept. 21, 1949, at Dr. John Adams' home in Jackson, with 30 members and guests in attendance. The morning program included a discussion of the "State Brucellosis Program" by Dr. H. E. Curry, state veterinarian; a talk on "Bovine Sterility" by Dr. J. W. Cunkelman, Fort Dodge, Iowa; and a panel discussion on "Veterinary Problems." A steak dinner at the Oak Lodge was followed by a business meeting. New officers of the Association are Drs. L. W. Hathaway, Cape Girardeau, president; H. E. Dickman, Ferryville, vice-president; and F. A. Stepp, Sikeston, reëlected secretary-treasurer. Following the business meeting, a clinic was held at Dr. Adams' office.

Dr. J. W. Trowbridge invited the Association to meet in Malden on April 19, 1950.

s/F. A. STEPP, *Secretary.*

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Resolution on Lay Personnel.—In the belief that the greatest and most effective health and disease control service can be rendered to the livestock industry and to the public at large through the proper use of trained veterinarians, the Greater St. Louis Veterinary Medical Association, on Nov. 5, 1948, adopted the following resolution. Copies have been sent to the regulatory officials and others concerned in the adoption of a policy of using lay technicians in disease-eradication projects.

BE IT RESOLVED, That this Association goes on record, considering the benefits and best interests of the entire livestock industry, as opposing the incorporation of lay testing in our tuberculosis- and brucellosis-control programs.

BE IT FURTHER RESOLVED, That in support of our voiced position, we pledge to coöperate in the execution and application of the tests on an efficiently organized, economically sound, and professional basis.

s/W. C. SCHOFIELD, *Secretary.*

[The pledge of support is particularly commendable, and fulfillment of that pledge will insure a maximum utilization of the training and knowledge possessed by veterinarians, which, in turn, will assure a maximum service. Both point to a profitable and permanent agriculture based on healthy livestock, and to a healthy and well-nourished American public, by virtue of reduced exposure to organisms of disease as well as increased resistance as a result of adequate nutrition.—ED.]

New Jersey

Dr. Goldhaft in Europe.—Dr. Arthur D. Goldhaft (UP '10), director of Vineland Poultry Laboratories, Vineland, N. J., left July 14 for London, where he attended the International Veterinary Congress, Aug. 8-13, 1949. Since the Congress, Dr. Goldhaft has visited France, Switzerland, Holland, Belgium, Sweden, Denmark, and Norway. Before returning to the United States, he will go to Israel where he has been invited to assist in establishing a veterinary research institute.

New York

New York City Association.—The Veterinary Medical Association of New York City, Inc., met at the Hotel Statler on Oct. 5, 1949. Dr. David K. Detweiler, associate professor of physiology and pharmacology, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, discussed "Cardiac Disease in Dogs."

s/C. R. SCHROEDER, *Secretary.*

Ohio

Dr. Sutton Wins Feed Manufacturers' Award.—Dr. Thomas S. Sutton, biochemist at The Ohio State University, won the American Feed Manufacturers Association's $1,000 annual award for 1949, in honor of his far-reaching research on the nutritional requirements of dairy calves. Dr. Sutton is best known in the veterinary profession for his valuable contributions to the literature of dairy science.

Pennsylvania

State Association.—The sixty-seventh annual convention of the Pennsylvania State Veterinary Medical Association was held in the Bedford Springs Hotel, Bedford, Oct. 5-7, 1949. The scientific program follows.

Dr. Jerry Sotola (Ph.D.), assistant director of Armours Livestock Bureau, Chicago: "Nutritional Research and Its Bearing on Volume Production of Livestock."

Dr. C. P. Zepp, Sr., New York, N.Y., president of the AVMA: "Ear Diseases of the Dog and Cat and Surgical Technique to Establish Drainage in the External Ear Canal" and "Veterinary Medicine."

Dr. Otto Stader, Ardmore, Pa.: "Internship as a Prerequisite to Taking Veterinary State Board Examinations in Pennsylvania."

Dr. A. W. Stultz, Hopewell, N.J.: "The Practitioner's Approach to Better Mastitis Management."

Dr. John T. McGrath, Department of Veterinary Pathology, University of Pennsylvania, School of Veterinary Medicine, Philadelphia: "Disturbances of Locomotion in Dogs Due to Spinal Lesions" (with illustrations).

Dr. M. G. Fincher, Department of Medicine and Obstetrics, New York State Veterinary College, Ithaca: "Knotty Problems in Cattle Practice."

Mr. E. W. Callenbach, head, Department of Poultry Husbandry, Pennsylvania State College, State College: "Poultry Flock Health Problems."

Dr. Gerry B. Schnelle, assistant chief of staff, the Angell Memorial Animal Hospital, Boston, Mass.: "Geriatrics in Small Animal Practice" and "Simple Fracture Treatment."

Dr. Edwin A. Churchill, associate professor of veterinary surgery and obstetrics, University of Pennsylvania, Philadelphia: "Lameness in Horses" (with illustrations).

Dr. Gordon Danks, Department of Animal Industry, School of Veterinary Medicine, University of Pennsylvania: "Bovine Surgery."

Dr. Guy A. Railsback, Cutter Laboratories, Berkeley, Calif.: "Baby Pigs—Why Do They Die?"

Members of a panel on "A Demonstration and Discussion of Bovine Fertility Problems" were Drs. Alfred L. Bortree, State College; J. J. Connolly, Indiana; C. M. Christy, Brookville; W. Robert Korns, Somerset; and Charles A. Moorehead, Indiana.

S/RAYMOND C. SNYDER, *Secretary*.

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Keystone Association.—The Keystone Veterinary Medical Association met Sept. 28, 1949, at the School of Veterinary Medicine, University of Pennsylvania. Dr. David K. Detweiler, assistant professor of pharmacology at the University, discussed "Diagnosis and Treatment of Heart Disease in Dogs."

S/RAYMOND C. SNYDER, *Secretary*.

Puerto Rico

Dr. Lopez-Pacheco Honored.—The following letter and photograph of the group present at the special meeting honoring Dr. O. A. López-Pacheco upon his appointment as vice-president of the AVMA were received from Dr. César Clavell, president of the constituent association, the Asociacion Medico Veterinaria de Puerto Rico.

September 28, 1949

Gentlemen:

On August 12 the Insular Association of Veterinarins had a special meeting in honor of Dr.



Those present at the special meeting honoring Dr. López-Pacheco were Drs. (1) José Díaz Bonnet, Insular Government veterinarian; (2) Alfonso Rivera, chief veterinarian, Division of the Insular Department of Agriculture; (3) Rafael Echegaray, U. S. BAI; (4) Olaguibel López-Pacheco, practitioner; (5) Luis A. Montañez, U. S. BAI; (6) Pedro A. Oliver, Insular Government veterinarian; (7) Gerardo Arroyo, U. S. BAI; (8) Gabriel González, U. S. BAI; (9) Humberto Zayas, U. S. BAI; (10) José D. Rivera, University of Puerto Rico Agricultural Experiment Station; (11) Francisco M. Santiago, U. S. BAI; (12) Enrique R. Toro, U. S. BAI; (13) Herbert Gómez, U.S. BAI; (14) Carmelo Alemar, U. S. BAI; (15) Fernando L. Goyco, practitioner; (16) Rosendo Cordero, U. S. BAI; (17) José L. Soler, U. S. BAI; (18) Julio A. Echegaray, U. S. BAI; (19) Eduardo E. Toro, U. S. BAI; (20) Dorian Lugo, U. S. BAI; (21) César Clavell, U. S. BAI; (22) Frank Gotay, U. S. BAI; (23) Jaime Bagué, technical assistant to Insular commissioner of agriculture; (24) Ernesto López, U. S. BAI.

López-Pacheco, private practitioner of San Juan, P. R., to whom the AVMA bestowed a great honor, for he was elected second vice-president of this great organization.

The Puerto Rico Insular Veterinary Association wants to express its sincere appreciation to all members of the AVMA who elected Dr. Lopez to such a high position.

This Association, which I have the honor to preside, is really proud that one of its members has received such a high recognition, especially being located far away from the continental United States.

We all are behind Dr. López and will give the AVMA our full cooperation.

We are enclosing a picture of the group present at the special meeting, with their identification and position.

S/CESAR CLAVELL, *President.*

Tennessee

Short Course.—The College of Agriculture, University of Tennessee, presented a short course for veterinarians at the University, in Knoxville, on Sept. 15-16, 1949. The scientific program follows.

Dr. W. J. Gibbons, head, Department of Large Animals, School of Veterinary Medicine, Auburn, Ala.: "Problems in Cattle Practice," "The Use of Sulfonamides in Veterinary Medicine," and "The Diagnosis, Treatment, and Management of Certain Pathologic Conditions of the Reproductive Tract of Cattle."

Dr. H. C. H. Kernkamp, Department of Veterinary Medicine, University of Minnesota, St. Paul: "Swine Enteritis Complex" and "Swine Erysipelas — Diagnosis, Treatment, and Control."

Dr. R. C. Klussendorf, assistant executive secretary, AVMA, Chicago, Ill.: "Evaluation of Recent Research in Animal Nutrition."

Dr. R. S. Sugg, dean, School of Veterinary Medicine, Auburn, Ala.: "Regional Veterinary Education."

Dr. A. H. Groth, director, Animal Disease Research Laboratory, Auburn, Ala.: "Problems of Raising Dairy Calves" and "Stomach Worms of Cattle — Diagnosis, Treatment, and Control."

Dr. C. S. Hobbs, head, Animal Husbandry and Veterinary Science Department, University of Tennessee, Knoxville: "Research Problems to be Investigated with Radioactive Substances."

Dr. J. Greene, head, Department of Small Animal Medicine, School of Veterinary Medicine, Auburn, Ala.: "Surgical Techniques" and "Indications and Use of Antibiotic Agents in Small Animal Medicine."

Dr. H. W. Hayes, Knoxville: "Diagnosis, Treatment, and Management of Encephalitis in Dogs."

Mr. F. S. Chance, vice-director, Tennessee Agricultural Experiment Station: "Tennessee's Plans for Research in Animal Diseases."

S/DENNIS SIKES, *Chairman.*

Washington

Dr. Vitums Appointed to College Staff.—Dr. Arturs Vitums has been appointed assistant professor of veterinary anatomy and histology at the College of Veterinary Medicine, State College of Washington, Pullman.

Dr. Vitums received his veterinary education at the University of Latvia, in Riga, receiving his first degree in 1930 and his doctorate in 1936. He



Dr. Arturs Vitums

joined the veterinary faculty of that school and, in 1938, became director of anatomy. With his family, he was forced into exile in Germany in 1944. Following the war, Dr. Vitums taught anatomy in the university established by UNRRA in Munich, and, when that school was closed in 1947, he joined the veterinary faculty of the Ludwig-Maximilian University in Munich.

S/J. A. MCCURDY, *Chairman.*

Wisconsin

Milwaukee Association.—The annual meeting of the Milwaukee Veterinary Medical Association was held in the Wisconsin Humane Society Lecture Hall on Sept. 20, 1949. Dr. Fred W. Milke reviewed the high-lights of the Detroit meeting of the AVMA, and Dr. M. Shiffman, of the Milwaukee Health Department, discussed "Veterinary Education and Practice Abroad." Dr. Shiffman is a graduate of Alfort University in France and of the University of Michigan.

S/K. G. NICHOLSON, *Secretary.*

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Southeastern Association.—The Southeastern Wisconsin Veterinary Association met on Sept. 29, 1949, at Beaver Dam. Dr. McCullough (M.D.), University of Chicago, discussed "Brucellosis, Diagnosis and Treatment." Several medical men attended as guests of the members.

S/ROBERT CURTIS, *Secretary.*

FOREIGN NEWS

Great Britain

Horse Decline Serious.—The Clydesdale Horse Society has sounded a warning on Britain's declining horse population (*Vet. Rec.*, March 5,

1949). Labeling the position of the heavy horse breeding industry "really serious," the Society cautions that supplies of fuel oil for agriculture might be greatly reduced or totally unavailable "should the international situation deteriorate further," with resultant interruption of foreign trade. The Society questions whether enough horses will be available for possible agricultural emergencies, in view of the small number of mares being mated and the large number of young, useful horses being slaughtered for meat.

In the wake of this decline, Britons are alarmed to learn that at least 90 per cent of the horses shipped from England to Belgium are going direct to abattoirs instead of to farms, notwithstanding that export licenses are granted only under Belgian importers' written guarantees that the animals are required for work and will not be slaughtered. It is estimated that about 2,000 newly shipped English horses were slaughtered in Belgium last year.

Holland

Location for Foot-and-Mouth Disease Laboratory.—Asked by an anxious American visitor where a foot-and-mouth disease vaccine laboratory should be located, Director H. S. Frenkel of the state laboratory at Amsterdam replied, "On the upper floor of the packinghouse where there are plenty of animals to work on." Cross-questioned about the danger of spreading the infection from the laboratory, he assured the inquiring reporter that good laboratorians do not spread disease.

A look around the laboratory that is keeping Holland completely protected against foot-and-mouth disease indicated that such a plant shouldn't cost more than $100,000 to install. The thought of the U. S. A. spending $30 million for an isolated island, or something, was dubbed fantastic.

India

Personal.—Dr. Arlan W. McClurkin, Allahabad, writes that his two young sons who contracted poliomyelitis in November, 1948, have practically recovered. His report on an interesting disease condition which occurred there during the 1948 flood will appear in a forthcoming issue of the JOURNAL.

Wales

Urge Veterinary College for Wales.—Difficulty experienced by qualified Welsh candidates in gaining admission to veterinary colleges in England, Scotland, and Ireland is bringing new pressure for the establishment of such a college in Wales. The fact that one unnamed college has rejected more than 90 per cent of its Welsh applicants brought the situation into parliamentary focus recently (*Vet. Rec.*, March 5, 1949). Proponents emphasized that Welsh students are particularly adapted for veterinary medicine by virtue of their agricultural background and, therefore, deserve educational opportunities equal to those in other parts of the United Kingdom.

VETERINARY MILITARY SERVICE

Major Mace Attends Course in Tissue Culture.—Major Don L. Mace, V.C., completed a one-month course in tissue culture techniques given in July, 1949, by the Rockefeller Institute for Medical Research and the College of Physicians and Surgeons, Columbia University, at the Mary Imogene Bassett Hospital in Cooperstown, N. Y. The course covered tissue culture techniques that might be applied to cell morphology, tumor growth, immunity, and virology.

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Major MacEchern Attends Public Health School.—Major Neil G. MacEchern was selected to attend a course in public health at Johns Hopkins University, which began Sept. 22, 1949. This is in line with an air force policy of training and utilizing veterinary officers to the fullest extent in the field of public health and preventive medicine.

Major MacEchern was released from assignment in Hawaii in July, where he served as the Pacific Division veterinarian of the Military Air Transport Service, and assigned to the Atlantic Division of the Military Air Transport Service as the Atlantic Division veterinarian.

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Air Corps Veterinarians Attend Nutrition Course.—Six veterinary officers of the U. S. Air Force Medical Service attended a two-week course in nutrition at the Medical Nutrition Laboratory in Chicago Ill., September 26 to October 8. The course emphasized the techinques of ration analysis and nutrition surveys and practical application in the field. Those attending were Lieut. Col. James R. Karr; Major Charles E. Robinson; Major Robert W. Day; Major James C. McIntyre; Major Joseph H. Berger; and Major Robert R. Miller.

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Veterinary Officer's Inspection Trip.—Col. Wayne O. Kester, chief of the Veterinary Service, U.S. Air Force Medical Service, and Major Robert R. Miller, assistant chief, inspected veterinary activities at Scott, Fort Warren, Lowry, and Offutt Air Force bases on Sept. 15-17, 1949. The inspection trip was made in conjunction with other members of The Surgeon General's Office in an inspection of medical service activities.

BIRTHS

Dr. (OSU '43) and Mrs. Robert W. Stout, Vevay, Ind., announce the birth of a daughter, Jennifer Louise, on June 17, 1949.

Dr. (API '42) and Mrs. W. S. Bailey, Auburn, Ala., and Baltimore, Md., announce the birth of a daughter, Margaret Ann, on Aug. 7, 1949.

Dr. (OSU '46) and Mrs. Dorian J. Kern, Greenville, Pa., announce the birth of a daughter, Nancy Ellen, on Aug. 24, 1949.

DEATHS

★**J. B. Baber** (IND '16), 57, Stockton, Ill., died Sept. 6, 1949. Dr. Baber was a member of the Illinois State and the Northern Illinois veterinary medical associations and of the AVMA.

B. W. Ballou (KCVC '10), Madison, Wis., died Aug. 1, 1945. Dr. Ballou was meat inspector with the U.S. Bureau of Animal Industry.

Harold P. Bown (CHI '18), Corydon, Iowa, died Aug. 3, 1949. Dr. Bown had been a member of the AVMA.

★**R. C. Bunker** (OSU '25), 54, Los Angeles, Calif., died July 11, 1949. Dr. Bunker was admitted to the AVMA in 1937.

★**Samuel Emmitt Bunton, Jr.** (TEX '33), 40, Del Rio, Texas, died June 23, 1949. A past president of the State Veterinary Medical Association of Texas, Dr. Bunton was also assistant state veterinarian. As a practitioner, his experience was largely with ranching interests. He was admitted to the AVMA in 1937.

★**Harold C. Collins** (ONT '41), 44, Ft. Garry, Manitoba, Can., died during the summer of 1949. He was supervisor of the Experimental Fur and Game Station at the University of Manitoba. A member of the Manitoba Veterinary Association, Dr. Collins was admitted to the AVMA in 1946.

Harry M. Farley (UP '09), Milnesville, Pa., died Feb. 2, 1949.

★**Desiderio Finamor** (ALEGRE '26), 50, Rio Grande do Sul, Brazil, died June 7, 1949. Dr. Finamor, in 1946, was appointed secretary of agriculture of the State of Rio Grande do Sul. He was a member of the South Brazilian Association of Veterinarians and of the AVMA.

Henry H. Freed (CVC '05), Calvary, Wis., died June 29, 1949. Dr. Freed was a small animal practitioner.

★**Philip L. Gauntt, Jr.** (UP '38), 40, Trenton, N. J., died Sept. 3, 1949, after a long illness. Dr. Gauntt had served as a captain in the Army Veterinary Corps in World War II, and had practiced in Trenton for five years. He is survived by his wife and two sons. His father, Dr. Philip L. Gauntt, Sr. (ONT), preceded him in death Dec. 5, 1948 (JOURNAL, Feb., 1949:112). Dr. Gauntt was admitted to the AVMA in 1944.

C. J. Heckard (ISC '98), Wheatland, Iowa, died July 31, 1949.

O. B. Hess (NAT '94), 89, Fostoria, Ohio, died May 18, 1949. Dr. Hess, who at one time had been with the U. S. Bureau of Animal Industry, at the time of his death, was in commercial work. Dr. Hess had been a member of the AVMA.

H. C. Hunter (IND '09), Gibson City, Ill., died on June 29, 1949. Dr. Hunter was a small animal practitioner.

★**Ray Kelly** (KCVC '11), 75, Knob Noster, Mo., died on Sept. 6, 1949. Dr. Kelly had retired in 1943. He was admitted to the AVMA in 1917.

William H. Kerr (ONT '93), Sistersville, W. Va., died early in September, 1949. Dr. Kerr had been a member of the West Virginia Veterinary Medical Association and of the AVMA. In his later years, he practiced optometry.

Connie McMillan (KCVC '16), 53, Rosedale, Miss., died in December, 1945, from coronary thrombosis. Dr. McMillan had been a member of the AVMA.

T. C. Miller (ST JOS '08), Platte City, Mo., died June 10, 1949. Dr. Miller had been a member of the AVMA.

Vincent C. Moyer (UP '10), Upper Darby, Pa., died Sept. 8, 1949. Dr. Moyer was formerly production manager for the Supplee Wills-Jones Milk Company. He had retired recently.

George F. Myers (ONT '95), Charleston, Ill., died on May 23, 1949.

John H. Newman (CVC '03), Little Falls, Minn., died May 27, 1949.

Alvin Lee Odom (GA '26), Thomaston, Ga., died in May, 1949.

★**D. M. Phillips** (CIN '16), 66, Ashland, Ky., died early in September, 1949, of a heart attack. Before coming to Ashland, Dr. Phillips had practiced in West Virginia and in Huntington, Ky. He was a member of the AVMA.

Clinton H. Sater (OSU '02), Hamilton, Ohio, died in May, 1949. Dr. Sater was a member of the Ohio State Racing Commission.

Charles E. Schweinler, Jr. (CVC '13), 66, Belvidere, Ill., died Aug. 15, 1949, after two years of failing health. Dr. Schweinler had practiced in Belvidere for twenty-seven years.

★**J. R. Skala** (OSU '32), 42, Chicago, Ill., died on Aug. 24, 1949. He is survived by his wife and a son and daughter. Dr. Skala was admitted to the AVMA in 1940.

N. I. Stringer (CHI '89), Wenona, Ill., died June 11, 1949. Dr. Stringer had been a member of the AVMA.

★**James M. Tade** (KCVC '03), 77, Vincennes, Ind., died on March 11, 1949, from a cerebral hemorrhage. He had conducted a general practice at Vincennes since 1903, except for a brief assignment to meat inspection in the U. S. Bureau of Animal Industry in 1906 and 1907. Dr. Tade will long be remembered in his community for his unselfish devotion to the animals he treated. Because of his sincere love of all creatures, he gave unstintingly of his time, often traveling many miles and spending long hours in drafty barns to help his patients. He is survived by his wife and five sons. The eldest son, Frank M. Tade (KCVC '14), has been associated with his father in practice since 1914.

George Thomas (MSC '21), East Corinth, Vt., died June 2, 1949.

★Indicates members of the AVMA.

Proceedings, Eighty-Sixth Annual Meeting

American Veterinary Medical Association

Detroit – July 11-14, 1949

Section Meetings

(The Opening Session, the General Sessions, and the Sessions of the House of Representatives were published in the October JOURNAL.)

Section on General Practice

Wednesday Morning, July 13, 1949

The first session of the Section on General Practice, held in connection with the Eighty-sixth Annual Meeting of the American Veterinary Medical Association, Detroit, Mich., convened at the Book-Cadillac Hotel at 9:05 a.m., Dr. A. E. Erickson, Charlotte, Mich., chairman, presiding.

CHAIRMAN ERICKSON: Ladies and Gentle men: If you will give us your attention, we will start the program for the day.

Dr. A. G. Madden will start the program with some pictures he has taken in general practice, and a little description of them. Dr. Madden!

. . . Dr. Madden showed his movie. . . . (Applause.)

CHAIRMAN ERICKSON: Thank you, Dr. Madden.

Next on our program are remarks by the chairman. I am not going to make a speech. That is good for you and me both. I appreciate the privilege of serving in this capacity. It has been an unusual experience for me, a very good one. I have made a lot of new acquaintances and have really been around a bit in the last year working on this job.

I want to tell you that Dr. Madden, our secretary, has done a marvelous job which I sincerely appreciate. I think you will find, before the day is over, that we have a program that is worthwhile, and Dr. Madden should be given the credit for it.

Next on our program is the report by the secretary, Dr. Madden.

SECRETARY MADDEN: Mr. Chairman, I think you deserve all the praise for the program. You told me what to do, and I tried to get it done.

I personally want to thank all of you gentlemen who have so kindly consented to appear on our program, and all of you who chiseled a little bit on the boys and told us who the ones were that we should have on the program.

CHAIRMAN ERICKSON: Next on the program is "The Handling of Feeder Cattle Problems" by Dr. G. W. Lies, Fort Recovery, Ohio. Dr. Lies!

. . . Dr. G. W. Lies read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: Thank you, Dr. Lies, for a very good paper.

CHAIRMAN ERICKSON: We will proceed with the next paper, "X-Disease (Hyperkeratosis) in Cattle," by Dr. Rue Jensen, Fort Collins, Colo.

. . . Dr. Rue Jensen delivered his talk. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: Thank you, Dr. Jensen, for a very fine paper.

We will have to go to our next paper, "Acute Swine Erysipelas in Northwestern Iowa," by Dr. W. A. Aitken, Merrill, Iowa.

. . . Dr. W. A. Aitken read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: Thank you, Dr. Aitken, for a very good paper.

The next is "Brucellosis in Swine," by Dr. L. M. Hutchings, Lafayette, Ind.

. . . Dr. L. M. Hutchings presented his paper. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: Thank you, Dr. Hutchings.

The program this afternoon will start at one o'clock.

. . . The meeting recessed at 11:45 a.m. . . .

Section on General Practice

Wednesday Afternoon, July 13, 1949

The second session convened at 1:10 p.m., Chairman Erickson presiding.

CHAIRMAN ERICKSON: We will start the afternoon session. The first paper is "Mastitis in Dairy Cattle" by Dr. A. A. McMurray, Lakeland, Fla. Dr. McMurray!

. . . Dr. A. A. McMurray read his paper . . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: Thank you very much. We will have to go to the next paper.

Here comes a very important part of the program. You are supposed to nominate a chairman and secretary for the Section on General Practice for next year. Nominations are in order for chairman.

It would be advisable to have the chairman from the South, since the meeting will be in Florida.

DR. LOUIS R. NEWLIN (Romeo, Mich.): I nominate Dr. Ronald Jackson of St. Augustine, Fla.

CHAIRMAN ERICKSON: Any other nominations? If not, I think we are in order to turn his name in as chairman for next year.

What about a secretary?

DR. FLEMING: I would like to nominate Dr. J. L. Hopping of Atlanta, Ga.

(Upon motion regularly made and seconded, the nominations were closed.)

CHAIRMAN ERICKSON: The next paper is "Mobile Phone" by Dr. D. R. Stephenson of Rockford, Ill.

. . . Dr. D. R. Stephenson talked, and followed this by a demonstration of the mobile phone. . . . (Applause.) (Paper to be published.)

CHAIRMAN ERICKSON: The next on the program is "Two-Way Radio in Veterinary Practice" by Dr. R. E. Rasmussen, Bloomfield, Iowa.

. . . Dr. R. E. Rasmussen read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: Thank you, Dr. Rasmussen.

Next on our program is "Flying Veterinary Service," by Dr. E. T. Anderson of Dixon, Ill. Dr. Anderson!

. . . Dr. E. T. Anderson gave an illustrated talk. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: Thank you. That was very interesting.

We will go on with the next number on the program, "Further Studies Pertaining to the Immunizing Value of Brucella M Vaccine," by I. F. Huddleson, East Lansing, Mich. Is Dr. Huddleson here? (Absent.) We will proceed with the next number, "Some Phases of Dairy Cattle Practice," by Dr. H. A. Gray, Bowling Green, Ky.

. . . Dr. H. A. Gray read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: I am informed that Dr. Huddleson is back now so we will call on him. Dr. I. F. Huddleson on "Further Studies Pertaining to the Immunizing Value of Brucella M Vaccine."

. . . Dr . I. F. Huddleson read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: The next paper is "Bovine Dystocia," by Dr. Betty J. Wright, Perry, Mich. Dr. Wright! (Applause.)

. . . Dr. Betty J. Wright presented her paper. . . . (Applause.) To be published.)

CHAIRMAN ERICKSON: Thank you, Dr. Wright.

Our next paper is "The Cattle Mange Problem in New York State: Incidence, Distribution, Pathogenicity, Differential Diagnoses, and the Practical System of Control," by Drs. D. W. Baker, Ithaca, N. Y.; and I. G. Howe, Albany, N. Y.

. . . Dr. D. W. Baker read the paper prepared by himself and Dr. I. G. Howe. . . . (Applause.) (To be published.)

CHAIRMAN ERICKSON: Thank you, Dr. Baker.

This concludes our program for the afternoon. Thank you very kindly.

. . . The meeting adjourned at 5:10 p.m. . . .

Section on Small Animals

Tuesday Morning, July 12, 1949

The first session of the Section on Small Animals, held in connection with the Eighty-sixth Annual Meeting of the American Veterinary Medical Association, Detroit, Mich., convened at the Statler Hotel, at 9:15 a.m., Dr. S. R. Elko, Highland Park, Mich., chairman of the Section, presiding.

CHAIRMAN ELKO: Fellow Members of the American Veterinary Medical Association and Guests: Twenty years ago, we had the pleasure of having the American Veterinary Medical Association as guests in the City of Detroit. A lot of pioneering has been done since that time, and a lot of hard work by a good many of our eminent small animal practitioners has taken place.

The program that we will have today has required a lot of hard work. It really did not come by accident. It means a lot of hard work for a lot of these practitioners throughout the United States.

We will start our program with Dr. H. C. Stephenson who will give us an illustrated talk on "Views of Small Animal Hospitals Throughout the United States." Dr. Stephenson is a professor of small animal diseases in New York State Veterinary College at Cornell University, Ithaca, N. Y.

We will now begin our program with Dr. Stephenson. (Applause.)

. . . Dr. H. C. Stephenson read his paper. . . . (Applause.) (To be published.)

(Dr. H. B. Roberts, Cleveland, Ohio, Secretary, assumed the chair.)

ACTING CHAIRMAN ROBERTS: Thank you very much, Dr. Stephenson, for these very fine photographs.

Dr. Elko has gone to attend a rehearsal of our telecast that will be produced here at two o'clock this afternoon, and he has asked me to take over and continue with the program.

I want to announce that at two o'clock our fracture fixation panel will be aired over WWJ-TV. The actual work will take place in the studio, and it will be transmitted here on the screen.

Our next speaker will be Dr. W. G. Magrane, a practitioner from Mishawaka, Ind., and he will discuss "Some Aspects of Canine Ophthalmology."

. . . Dr. W. G. Magrane read his paper. . . . (Applause.) (To be published.)

ACTING CHAIRMAN ROBERTS: Thank you very much, Dr. Magrane, for that excellent paper.

Our next speaker will be Dr. R. D. Larcey, director of the Animal Hospital at Western Reserve University in Cleveland, Ohio. Dr. Larcey's topic will be, and this is a growing field of veterinary medicine, "Veterinary Service to Medical Research."

. . . Dr. Larcey talked and showed a motion picture. . . . (Applause.) (To be published.)

ACTING CHAIRMAN ROBERTS: Our final speaker for this morning's session is our guest speaker, Dr. C. C. Higgins, M.D., who is chief of staff of the Department of Urology, Cleveland Clinic Foundation, Cleveland, Ohio. Incidentally, Dr. Higgins is also President of the American Urological Society. We are very fortunate in being able to obtain him to appear before this convention.

I take great pleasure at this time in presenting Dr. Higgins who will talk on "Experimental Production of Urinary Calculi." Dr. Higgins! (Applause.)

. . . Dr. Higgins read his paper. . . . (Applause.) (To be published.)

ACTING CHAIRMAN ROBERTS: Thank you very much, Dr. Higgins.

Gentlemen, I am sorry that our time has run out. We really will not have time for questions now. I would like for you to convene here this afternoon as close to one o'clock as possible.

. . . The meeting recessed at 12:00 noon. . . .

Section on Small Animals

Tuesday Afternoon, July 12, 1949

The second session convened at 1:15 p.m., Acting Chairman Roberts presiding.

ACTING CHAIRMAN ROBERTS: Our guest speaker for the afternoon, Dr. Geo. Rieveschl, Jr., who is the director of Chemical Research at Parke, Davis Laboratories has a topic of vast interest to the veterinary profession, "The Application of Antihistamine Drugs in Small Animal Practice."

Dr. Rieveschl is a Ph.D., and he has done considerable pioneer work in the field of the antihistaminic drugs. I take great pleasure in presenting Dr. Rieveschl. (Applause.)

. . . Dr. Rieveschl read his paper. . . . (Applause.) (To be published.)

ACTING CHAIRMAN ROBERTS: Thank you, Dr. Rieveschl.

The Chair at this time will entertain nominations for section officers for the 1950 Convention. This convention is to be held in Miami Beach, Fla. I want to call your attention to the By-Laws, which should be understood by members participating in the nominations.

Section 2 (a) provides: "The officers of the sections shall be chosen by the president from section members nominated by direct appointment."

Nominations for chairman of the Small Animal Section for the 1950 Convention are now in order.

DR. N. S. CRAVER (Youngstown, Ohio): I would like to nominate Dr. Charles Bild of Miami.

(The nomination was regularly seconded.)

ACTING CHAIRMAN ROBERTS: The motion has been made and seconded that Charles Bild, of Miami, be nominated as chairman. Any further nominations for chairman?

DR. M. M. LEONARD (Asheville, N. Car.): I move that the nominations be closed.

(The motion was regularly seconded.)

ACTING CHAIRMAN ROBERTS: There is a motion made that nominations be closed. Any discussion? Those in favor say "aye"; opposed "no." It is carried.

We will now have nominations for secretary of the Small Animal Section for the 1950 Convention.

DR. TAYLOR P. ROWE (Richmond, Va.): I nominate Dr. M. M. Leonard of Asheville, N. Car.

(The nomination was regularly seconded.)

ACTING CHAIRMAN ROBERTS: It has been moved and seconded that Dr. M. M. Leonard of Asheville, N. Car., be secretary of the Small Animal Section. Are there any further nominations?

DR. MARK L. MORRIS (New Brunswick, N. J.): I move the nominations be closed and the secretary cast a unaimous ballot for Dr. Leonard.

(The motion was regularly seconded.)

ACTING CHAIRMAN ROBERTS: Motion made and seconded. Those in favor say "Aye"; opposed "No." It is carried. We will now have the telecast.

(Telecast on fracture fixation.)

ACTING CHAIRMAN ROBERTS: The next speaker is Dr. H. E. Jensen, a practitioner of my home town, Cleveland. He has something new in ear trimming, and I know you are going to enjoy this, too. Dr. Jensen!

. . . Dr. H. E. Jensen gave an illustrated talk. . . . (Applause.) (To be published.)

ACTING CHAIRMAN ROBERTS: Thank you, Dr. Jensen.

(Dr. S. R. Elko, Chairman of the Section, resumed the chair.)

CHAIRMAN ELKO: Thank you, Dr. Jensen.

The next person on our program is Dr. Wayne Riser, a practitioner from Skokie, Ill., who will discuss "Progress in the Understanding of Canine Distemper and Associated Ailments." Dr. Riser! (Applause.)

. . . Dr. W. H. Riser read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ELKO: Dr. Riser, from all the discussion we have had here on your topic, it has been very enjoyable. (Applause.)

We have one more paper, by one of our local men, Dr. W. N. Konde of Birmingham, Mich., "The Application of Laboratory Results." Dr. Konde!

. . . Dr. W. N. Konde read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ELKO: Thank you very much, Dr. Konde. (Applause.)

Speaking for Dr. Roberts and myself, it was very pleasant to act as your officers in the Small Animal Section.

The meeting stands adjourned.

. . . The meeting adjourned at 4:30 p.m. . . .

Section on Surgery and Obstetrics

Tuesday Morning, July 12, 1949

The first session of the Section on Surgery and Obstetrics, held in connection with the Eighty-sixth Annual Meeting of the American Veterinary Medical Association, convened at the Book-Cadillac Hotel, Detroit, Mich., at 8:45 a.m., Dr. C. Harvey Smith, Crown Point, Ind., chairman, presiding.

CHAIRMAN SMITH: Gentlemen, you will notice on your program that the first item is "Man-Made Miracles." The film is not yet here. We are all set to go, and we are unable to find the film.

We have located the film but it is going to take time to get it here, so we will try to show it sometime during the course of this program. But we are going to start the program now.

Greetings to this Section on Surgery and Obstetrics! You have come here to acquire added knowledge. You seem to be an eager crowd, and you are coming to the right place.

In looking over the program, you will agree with me that we have secured for you a fine array of talent. Each speaker is so well known that he really needs no introduction.

Each speaker will be limited to twenty minutes to present his subject. There will be a ten-minute discussion period, following. I hope your questions will be interesting and the discussion lively.

The preparation of this fine program has been largely due to the efforts and the work of our secretary.

I did not have the pleasure of meeting Dr. E. A. Woelffer until yesterday, but I knew that, with all the work and all the writing that was to be done, you selected a very capable man at San Francisco last year.

Dr. Woelffer, I want to take this opportunity to express to you my appreciation for the work that you have accomplished, and I want to compliment you on a job well done.

Now, Dr. Woelffer, I am going to ask for the report of the secretary.

SECRETARY WOELFFER: Dr. Smith and Gentlemen: Dr. Smith is a modest chairman. We both worked at this program. It really was a pleasure, not work.

While I have no formal report to present at this time, I do want to take this opportunity to thank Dr. Smith for his coöperation. I enjoyed very much corresponding with him and discussing the various phases of the work that goes along with a setup of this kind.

I also want to take this opportunity to thank the men who are to appear on this program this forenoon and this afternoon. Without these men, of course, we couldn't have a program of this kind.

I also want to say, in addition to what Dr. Smith has said, that we appreciate this fine audience, not only in quality but in quantity, and I am sure that you are going to enjoy the speakers as they are presented to you today. Thank you very much.

CHAIRMAN SMITH: The first paper on the program is on "X-Ray Therapy." That is new to me. It may be new to a lot of you. We have a good man to present that subject, Dr. M. A. Emmerson of Ames, Iowa. (Applause.)

. . . Dr. Emmerson read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: The next paper is on "An Approach to the Mastitis Problem" by Dr. M. G. Fincher, Ithaca, N. Y. (Applause.)

. . . Dr. Fincher read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: Thank you, Dr. Fincher. The next paper is "Practical Diagnosis and Surgical Treatment of Traumatic Gastritis" by Dr. E. A. Churchill, Philadelphia, Pa. Dr. Churchill!

. . . Dr. Churchill read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: Thank you for an interesting paper on an important subject. The next paper is "Examination and Care of the Genital Tract of the Brood Mare," by Col. F. C. Sager, Paris, Ky. (Applause.)

. . . Col. Sager read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: Our concluding paper is on "Postparturient Problems in Dairy Cattle" by Dr. J. T. Schwab, Madison, Wis. (Applause.)

. . . Dr. Schwab presented his paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: Thank you, Dr. Schwab. The picture "Man-Made Miracles" will be shown at fifteen minutes to one. That doesn't give you much time to bolt your dinner.

. . . The meeting recessed at 12:00 noon. . . .

Section on Surgery and Obstetrics

Tuesday Afternoon, July 12, 1949

The second session convened at 12:55 p.m., Chairman Smith presiding.

CHAIRMAN SMITH: We will now have the picture that we failed to show you this morning.

. . . Mr. G. D. Britts, Waukesha, Wis., showed the motion picture "Man-Made Miracles." . . .

CHAIRMAN SMITH: The first paper on the program this afternoon is to be given by a fellow Hoosier, and one of the best-known and best-loved in our state. I am very happy to present that man from Indiana, Dr. J. F. Bullard of Lafayette, Ind., who has a paper on "A Comparison of the Various Surgical Procedures in Reducing Umbilical Hernias in Swine."

. . . Dr. Bullard read the paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: We come now to the point of selection of officers for this Section for the following year. We nominate a chairman and a secretary. I am ready to hear nominations for a chairman for this Section for next year.

DR. ISAAC S. McADORY (Auburn, Ala.): I nominate Dr. E. A. Davis, of Columbus, Ga., as chairman of this Section for the coming year.

(The nomination was seconded.)

CHAIRMAN SMITH: Are there any other nominations?

If there are no further nominations, we are ready for a motion to close.

(The motion was made and seconded, that the nominations cease and the chairman be instructed to cast the unanimous ballot for Dr. Davis; carried.)

CHAIRMAN SMITH: I hereby instruct the secretary to cast the unanimous vote of the membership for Dr. Davis for chairman for the following year.

We are now ready for nominations for secretary for this Section for the following year.

DR. E. W. TUCKER (Port Ewen, N. Y.): I nominate Dr. John F. Hokanson of Auburn, Ala., as secretary of this Section for next year.

DR. M. E. MANSFIELD (Rockwell City, Iowa): I second the nomination.

DR. ISAAC S. McADORY (Auburn, Ala.): I move that the nominations be closed and the secretary be instructed to cast the unanimous ballot.

(The motion was seconded and carried, and the unanimous ballot was cast for the election of Dr. Hokanson.)

CHAIRMAN SMITH: The next paper is on "Handling Bovine Sterility in Practice," by Dr. C. E. Bassler of Ainsworth, Iowa. Dr. Bassler.

. . . Dr. Bassler read his paper. . . . (Applause.) (Published in October, 1949, JOURNAL.)

CHAIRMAN SMITH: Thank you, Dr. Bassler, for a fine paper.

Next is "Dystocia in the Sow," by Dr. L. T. Railsback, Ellsworth, Minn. Dr. Railsback!

. . . Dr. Railsback read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: Thank you, Dr. Railsback, for a very splendid demonstration and paper.

CHAIRMAN SMITH: The next paper is "Hormones and their Relation to Lowered Fertility in Cattle" by Dr. W. G. Venzke, Columbus, Ohio.

. . . Dr. Venzke read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: That is a very good technical paper on hormone therapy.

The next paper is "A Comparison of Local Anesthetic Drugs and Combinations on the Duration of Epidural Anesthesia in the Bovine Animal" by Dr. S. J. Roberts, Ithaca, N. Y.

. . . Dr. Roberts read the paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: There are two more papers coming up, and we are running right on

schedule. I want to give you a few minutes to stretch, but I don't want to see you go out that door.

(Recess.)

CHAIRMAN SMITH: All right, gentlemen. The next speaker will present "Clinical Aspects of Vibrio Foetus Infections in Cattle," Dr. G. R. Moore, East Lansing, Mich. Dr. Moore!

. . . Dr. Moore read his paper . . . . (Applause.) (To be published.)

CHAIRMAN SMITH: Thank you, Dr. Moore, for a very good paper.

Now, the last paper, but not the least, "The Rectovaginal Fistula Operation in the Mare" by Dr. J. D. Gadd, Towson, Md.

. . . Dr. Gadd read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SMITH: Thank you, Dr. Gadd.

. . . The meeting adjourned at 4:00 p.m. . . .

Section on Research

Wednesday Morning, July 13, 1949

The first session of the Section on Research, held in connection with the Eighty-sixth Annual Meeting of the American Veterinary Medical Association, convened at the Statler Hotel, Detroit, Mich., at 9:00 a.m., Dr. O. W. Schalm, Berkeley, Calif., chairman of the Section, presiding.

CHAIRMAN SCHALM: Since we wish to keep our program on schedule, we shall start our motion picture, "X Disease or Hyperkeratosis in Cattle, Symptoms and Lesions."

. . . Dr. C. C. Morrill, Urbana, Ill., showed the motion picture. . . .

CHAIRMAN SCHALM: Thank you, Dr. Morrill, for a very excellent picture and presentation.

I would like to make a few remarks.

Our officers welcome you to this Section on Research. We have 11 papers to be read today. If each speaker does not take more than thirty minutes, we shall be through by 4:30 this afternoon. I hope the speakers will bear that in mind.

We hope you will take about twenty minutes for presentation, and that would leave about ten minutes for discussion. If the full time is taken in presentation, it may, of necessity, preclude discussion of your paper.

Where discussion takes place, the speaker or the questioner will please state his name and his city of residence, so that our recorder, Miss Hatton, may prepare an accurate transcript. If you have not sent your papers in ahead of time, please leave them with the recorder.

I wish to take this opportunity to express my appreciation to Dr. Morrill for his help in arranging this program. In fact, Dr. Morrill did most of the work. Your secretary will now make a report of his activities.

DR. C. C. MORRILL (Urbana, Ill.): I have no formal report to make. I would just like to express my appreciation to all of you who have responded so well to the requests for papers. We have many fine authors of interesting topics, and our chief regret was that we were unable to accept all of the offers. We certainly did appreciate your offers.

I have nothing further, Dr. Schalm.

CHAIRMAN SCHALM: We shall then proceed to the first paper on the agenda, "Studies on the Synthetocauline Lungworms of Sheep," by Drs. C. R. Mapes and D. W. Baker, Ithaca, N. Y. Dr. Baker will present the paper.

. . . Dr. Baker read the paper prepared by himself and Dr. Mapes, the title having been changed by the authors to "Studies on the Protostrongyline Lungworms of Sheep". . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: Thank you very much, Dr. Baker.

We shall proceed immediately to the next paper, "Treating Field and Laboratory Cases of Anaplasmosis with Antimalarial Drugs," Dr. Herman Farley, Stillwater, Okla.

. . . Dr. Farley read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: Thank you, Dr. Farley. It is rather unorthodox for the chairman of a section to present a paper in that section. However, we have four years of work that I wish to report this morning. The title of our paper is "Combined Effects of a Program of Management and Penicillin Therapy on the Occurrence of Staphylococcic Mammary Infections."

. . . Dr. Schalm read the paper prepared by himself and Dr. R. W. Ormsbee, Berkeley, Calif. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: The next paper is "The Persistence of Brucella Abortus Infection in Cattle," by Drs. C. A. Manthei and R. W. Carter, Beltsville, Md.

. . . Dr. Manthei read the paper prepared by himself and Dr. Carter. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: Thank you, Dr. Manthei.

The hour is late, so we will not discuss this paper. We will start promptly at one o'clock.

. . . The meeting recessed at 12:00 noon. . . .

Section on Research

Wednesday Afternoon, July 13, 1949

The second session convened at 1:00 p.m., Chairman Schalm presiding.

CHAIRMAN SCHALM: At this time we will have "The Pathology and Bacteriology of Infectious Rhinitis in Swine," by Drs. F. W. Schofield and T. L. Jones, Guelph, Ont. Dr. Jones will present the paper.

. . . Dr. Jones presented the paper prepared by himself and Dr. Schofield. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: Thank you very much, Dr. Jones, for this very excellent presentation. We will proceed with the program. First, an announcement.

(Announcement.)

We will now nominate the section officers for next year.

The Chair is now ready to receive the nominations for chairman of the Section on Research.

DR. DAVID L. COFFIN (Boston, Mass.): It has been the custom, in this section, to nominate the secretary to serve as chairman in the succeeding year. I think this has been very workable as a solution and insures continuity.

Therefore, I would nominate Dr. C. C. Morrill as chairman of the Research Section.

CHAIRMAN SCHALM: Do I hear a second to the nomination of Dr. Morrill as chairman?

DR. F. H. CASE (Savannah, Ga.): I second the nomination.

CHAIRMAN SCHALM: If there is more than one nomination, the president of the AVMA will make the selection as to who is to serve. Are there any further nominations?

Hearing none, we will then cast the unanimous ballot for Dr. Morrill.

We are ready for nominations for secretary.

DR. LUIS A. SORDO (Bethesda, Md.): I would like to nominate Dr. C. A. Manthei, who gave the paper on Brucella infection this morning.

CHAIRMAN SCHALM: Dr. C. A. Manthei has been nominated. Do I hear a second to that?

DR. THOMAS C. JONES (Washington, D. C.): I second the nomination.

CHAIRMAN SCHALM: Are there any further nominations?

Hearing none, we will instruct the secretary to cast the unanimous ballot for Dr. Manthei.

Next is "Studies of Transmissible Gastroenteritis in Baby Pigs," by Drs. W. W. Bay, L. M. Hutchings, L. P. Doyle, and Miss Doris E. Bunnell, M. S., Lafayette, Ind. Dr. Bay is to present the paper.

. . . Dr. Bay read the paper prepared by himself and Drs. Hutchings, Doyle, and Miss Bunnell. . . . (Applause.) (Published in the October, 1949, JOURNAL.)

CHAIRMAN SCHALM: Thank you very much, Dr. Bay.

Now we come to "Studies of the Virus of Equine Infectious Anemia," by Dr. R. L. Reagan, Mary G. Lillie, M.S., Jean W. Hickman, B.S., and Dr. A. L. Brueckner, College Park, Md. Dr. Brueckner will present the paper.

. . . Dr. Brueckner presented the paper prepared by himself, Dr. Reagan, Miss Lillie, and Miss Hickman. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: The next paper is "Observations on Infectious Canine Hepatitis," by Dr. I. Smith, Guelph, Ont.

. . . Dr. Smith read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: Thank you very much, Dr. Smith. At this time, we have another interesting canine disease coming up for discussion, "Studies of Canine Leptospirosis. (A) Evaluation of Laboratory Diagnostic Procedures. (B) Serologic Determination of the Incidence of Latent Infection in the Lansing Area." This paper will be presented by Dr. J. P. Newman of East Lansing, Mich.

. . . Dr. Newman read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: Next on the agenda, "A Comparison of Newcastle Disease Antibody Titers in Blood and Egg Yolk, as Measured by the Hemagglutination-Inhibition Test," by Dr. S. C. Schmittle, Urbana, Ill.

. . . Dr. Schmittle read his paper. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: Thank you, Dr. Schmittle. We shall proceed to the final paper on the agenda, "A Whole Blood, Rapid Agglutination Test for Avian Tuberculosis — A Preliminary Report," by Drs. A. G. Karlson and W. H. Feldman, Rochester, Minn., and M. R. Zinober, St. Paul, Minn.

. . . Dr. Karlson read the paper prepared by himself and Drs. Feldman and Zinober. . . . (Applause.) (To be published.)

CHAIRMAN SCHALM: Thank you very much for this interesting report. This completes our agenda, and, in closing, I would like to say that both Dr. Morrill and I have enjoyed the opportunity to help you develop a program this year, and Dr. Morrill will continue in the next year. The session is adjourned.

. . . The meeting adjourned at 4:00 p.m. . . .

Section on Poultry

Tuesday Morning, July 12, 1949

The first session of the Section on Poultry, held in connection with the Eighty-sixth Annual Meeting of the American Veterinary Medical Association, convened at the Book-Cadillac Hotel, Detroit, Mich., at 9:00 a.m., Dr. C. H. Cunningham, East Lansing, Mich., secretary of the Section, presiding.

. . . Dr. E. R. Quortrup, San Diego, Calif., showed the motion picture, "Botulism of Water Fowl". . . .

CHAIRMAN CUNNINGHAM: We are going to have to deviate somewhat from the usual procedure for this session. Dr. W. R. Hinshaw of California will be unable to be with us today as chairman, and the responsibility of the section falls upon me as secretary.

First of all, I wish to thank the Committee on Local Arrangements for this very excellent room and the ample number of chairs.

The next portion of the program calls for opening remarks by the chairman. I am going to play chairman, since Dr. Hinshaw is not here.

As all of you probably know, this is the twentieth anniversary of the Section on Poultry of the American Veterinary Medical Association. In 1929, the first session was held in this hotel.

I had a telegram from Dr. Hinshaw Saturday morning, sending his regrets that he would be unable to be with us, and suggesting that Dr. H. J. Stafseth, from the Michigan State College, be chairman of the Section. Dr. Stafseth was the first chairman of the Section on Poultry, and I believe it is rather fitting and proper that, under the circumstances, he handle the morning session. Dr. Stafseth, I will pass this honor on to you for the morning session, and you can pick up where you left off twenty years ago at the Book-Cadillac Hotel as the first chairman of this Section.

I would like to make a few more remarks before I turn the Chair over to Dr. Stafseth. The entire meeting of all Sections is a very closely integrated program. We have scheduled twenty-minute literary presentations, and we would like to request that all those on the program adhere to that time limitation. I would also like to request those persons asking questions from the floor to properly identify themselves so that the reporter may record it in the transcript of this Section. May I also ask that you speak distinctly so that the contributor to the program may understand your question and thus give a good answer to it.

I turn the morning session over to Dr. Stafseth.

(Dr. H. J. Stafseth, East Lansing, Mich., assumed the Chair.)

CHAIRMAN STAFSETH: Thank you, Dr. Cunningham.

Twenty years ago, when we met, we had a very, very small room and very, very few people in attendance. Last year, in San Francisco, I believe the Poultry Section was the best attended of all the meetings. We have a beautiful room this year, and a good audience, and all that remains for us to do now is to give the audience a good program. I am sure, from the names of the men on the program, that it is going to be good.

The first paper on the program is "Coccidiosis in Poultry—A Review," by Dr. P. A. Hawkins of East Lansing, Mich.

. . . Dr. Hawkins read his paper. . . . (Applause.) (To be published.)

CHAIRMAN STAFSETH: We will proceed with the next contribution, "Chemotherapy of Experimental Histomoniasis (Infectious Enterohepatitis) in Turkeys," by Drs. J. H. Sautter and B. S. Pomeroy, of St. Paul, Minn.

. . . Dr. J. H. Sautter read the paper prepared by himself and Dr. Pomeroy. . . . (Applause.) (To be published.)

CHAIRMAN STAFSETH: We will proceed with the next paper, "Nutritional Diseases of Poultry," by Dr. Edwin Jungherr of Storrs, Conn.

. . . Dr. Jungherr read his paper. . . . (Applause.) (To be published.)

CHAIRMAN STAFSETH: The next paper is "Progress in Pullorum Disease Control in Poultry with Special Emphasis on the Last Two Decades," by Dr. Henry Van Roekel, Amherst, Mass.

. . . Dr. Van Roekel read his paper. . . . (Applause.) (To be published.)

CHAIRMAN STAFSETH: Thank you, Dr. Van Roekel, for a most interesting presentation.

We are so close to the 11:30 deadline that we must close.

(Secretary Cunningham read announcements.)

CHAIRMAN STAFSETH: There are some distinguished guests in the audience whom I would like to introduce. Close to the front of the room is Dr. Rolf Svenkerud, of the Veterinary Institute at Oslo, Norway. (Applause.)

Also in the audience is Dr. Syfres, assistant chief of the Bureau of Animal Industry, Montevideo, Uruguay. (Applause.)

Also with us today is Dr. L. K. Whitten, of the Department of Agriculture, New Zealand. (Applause.)

We are very pleased to have you gentlemen with us, and I hope you will feel free to ask any of us at any time for any assistance you may need in order to make your stay here more profitable.

SECRETARY CUNNINGHAM: I should like to thank the contributors to the program for their coöperation.

When we planned this program, we thought that, since this is the twentieth anniversary of the Section, it would be more desirable to have an over-all type of program rather than to dwell upon one specific subject. We have had a number of symposiums in the last few years, and this year we tried to hit upon some subjects in each phase of poultry pathology. This morning we have had parasitology, nutritional diseases, and bacterial diseases of poultry. This afternoon there will be papers on virus diseases as well as the practitioner's and the regulatory official's viewpoint of the control of infectious diseases of poultry.

The guest chairman for the afternoon will be Dr. John Delaplane, the last chairman of this Section in San Francisco last year. May I ask that you be in attendance at one o'clock sharp. Thank you.

. . . The meeting recessed at 11:30 a.m. . . .

Section on Poultry

Tuesday Afternoon, July 12, 1949

The meeting reconvened at one o'clock, Dr. C. H. Cunningham presiding.

CHAIRMAN CUNNINGHAM: As announced at the morning session, Dr. J. P. Delaplane will be acting chairman of the afternoon session. He was the last chairman of the Section on Poultry, at the 1948 convention. I will now turn the Chair over to him.

(Dr. J. P. Delaplane assumed the Chair.)

CHAIRMAN DELAPLANE: Members of this Section, it is rather unusual for one to have an opportunity to preside over two successive meetings of the Section. We all regret that Dr. Hinshaw is not here to serve in this capacity.

The first item on the program this afternoon is a motion picture on poultry diseases, by Drs. C. C. Ellis, G. T. Klein and R. H. Barrett, of Amherst, Massachusetts.

. . . Motion picture, "Poultry Diseases," shown by Drs. C. C. Ellis, G. T. Klein, and R. H. Barrett. . . .

CHAIRMAN DELAPLANE: Thank you, Dr. Ellis.

I believe the next item on the program calls for nominations for section officers. It might be well for me to mention at this time that it has been the custom in this Section for a long time to promote the secretary to the position of chairman. In that way, he is in a position to assist the following year's secretary in organizing this program. Any of you who have had experience in formulating a program for this Section will appreciate the amount of work involved. It would be only fitting and proper, therefore, to compliment Dr. Cunningham for his efforts in this respect.

Fortunately, he could call on Dr. Hinshaw, who was last year's secretary, for assistance, and if Dr. Cunningham becomes chairman this year, he will work closely with the new secretary in formulating the program for the meeting in Miami Beach, Fla.

It has been customary, also, to select a secretary from the region in which the meeting is to be held. I suggest that you keep these points in mind when you consider the nominations for these offices.

We do not elect these officials, but nominate whom we want, and it is the prerogative of the incoming president to appoint them.

The first item of business in connection with the officers, then, will be the nomination and election of next year's chairman. The floor has the opportunity to make such nominations. May we have a nomination for chairman?

DR. W. H. HENDRICKS: (Salt Lake City, Utah): Mr. Chairman, it gives me a great deal of pleasure to place in nomination the name of Dr. Cunningham to serve as chairman of the Section on Poultry for the coming year. I know he will do a very good job. He is capable, and I am happy to nominate him.

CHAIRMAN DELAPLANE: Are there any other nominations?

DR. HUGH HURST (Salt Lake City, Utah): I move that nominations be closed.

DR. A. J. DURANT (Columbia, Mo.): I second the motion.

CHAIRMAN DELAPLANE: Unless there are other nominations, the motion is in order to cast a unanimous ballot for Dr. Cunningham as chairman.

(The motion was put to a vote and was carried.)

CHAIRMAN DELAPLANE: Do we have a nomination for secretary?

DR. C. A. BRANDLY (Madison, Wis.): Mr. Chairman, in view of the custom in the past, I would like to nominate Dr. Clifford W. Barber of Athens, Ga., as secretary of the Section for next year.

(The motion was severally seconded, was put to a vote, and was carried.)

CHAIRMAN DELAPLANE: Dr. Cunningham will be your chairman next year, and Dr. Barber will be the secretary.

I believe it has been the custom in the past, especially since we are running on time, to call for a few remarks from next year's chairman at this time.

DR. CUNNINGHAM: Gentlemen, thank you very much for this honor. I have never been to Miami Beach, and I want to go there next summer. I hope the weather will be good. I imagine if we get too warm at the meeting we can take a dip in the ocean. If Dr. Barber is in the room I am sure he will find the position as secretary to be very enjoyable.

Again may I thank you very much. I am sure we will have an excellent program in Miami Beach next year.

CHAIRMAN DELAPLANE: Dr. Cunningham would like to make a few announcements.

SECRETARY CUNNINGHAM: This is not scheduled on the regular program.

We folks of Michigan State College feel we have quite an institution at East Lansing, and we are proud of it. At this time, I would like to call on Dr. Stafseth, head of the Department of Bacteriology, for one or two short announcements.

DR. STAFSETH: I think we made a mistake in not extending an invitation to all of you people here in Detroit to come to Michigan State College if you can do so.

The second announcement is this: I just learned that I have been picked as a member of a committee to promote the establishment of a memorial library to the memory (although he is still living) of Jimmy Rice, who is the founder of the American Poultry Industry. Anyone who knows Jimmy Rice, and anyone who realizes the full significance of the undertaking, I am sure will want to contribute. I am going to ask Dr. C. D. Carpenter to tell you about this memorial library.

Dr. C. D. Carpenter outlined the life of Prof. "Jimmy" Rice and the plan to raise a fund of $25,000 to establish a poultry library at Cornell University, Ithaca, N. Y., as a memorial to him and his work.

CHAIRMAN DELAPLANE: The next item on the program this afternoon is a paper entitled, "Developments in the Study of the Avian Leucosis Complex," by Dr. G. E. Cottral, East Lansing, Mich.

. . . Dr. Cottral read his paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: Thank you, Dr. Cottral, for this fine portrayal of the avian leucosis complex picture.

Before we go on to the next contribution I am going to turn the Chair over to Dr. Cunningham for the duration of the next item on the agenda.

(Secretary Cunningham resumed the Chair.)

CHAIRMAN CUNNINGHAM: Dr. Delaplane is modest; he doesn't want to introduce himself.

The next three contributions are of a similar nature, virus diseases of the respiratory tract of poultry. Dr. Delaplane is turning the Chair back to me so that I can introduce him and he can take a bow, and after he is through I am going to give the Chair back to him so that he can continue.

The next contribution will be "Progress in Infectious Bronchitis Research," by Dr. John P. Delaplane of Kingston, R. I.

. . . Dr. Delaplane read his paper. . . . (Applause.) (To be published.)

(Dr. Delaplane resumed the Chair.)

CHAIRMAN DELAPLANE: We are fortunate to have as the next speaker a gentleman who has contributed a great deal to our information. Certainly, he is one of the first to make sure of the fact that we did have Newcastle disease in the United States.

The next paper is "Newcastle Disease," and we are fortunate to have Dr. C. A. Brandly, of Madison, Wis., to present this paper about the progress along this line.

. . . Dr. Brandly read his paper. . . . (Applause.) (To be published.)

CHAIRMAN DELAPLANE: Thank you, Dr. Brandly. We will go to the next paper now, and if you have any questions to ask Dr. Brandly I am sure he will be glad to answer them later.

The next contribution on the program this afternoon is by an individual who needs no introduction to you. He has played a large part concerning the various immunizing agents we have developed in the past twenty years in combatting some of these virus diseases.

The next paper is "Twenty Years of Progress in Immunization Against Virus Diseases of Birds," by Dr. F. R. Beaudette, of New Brunswick, N. J.

. . . Dr. Beaudette presented his paper. . . . (Applause.) (Published in October and November, 1949, issues of the JOURNAL.)

CHAIRMAN DELAPLANE: Thank you, Dr. Beaudette, for a very good summary of twenty years' activity in the development of vaccines.

The next contribution on the program this afternoon is by an individual who has contributed quite a bit in the way of applying knowledge in practice. He is Dr. F. C. Tucker, of Claypool, Ind., and his paper is entitled "Twenty-Five Years in Poultry Practice." Dr. Tucker.

. . . Dr. Tucker read his paper. . . . (Applause.) (To be published.)

(Secretary Cunningham resumed the Chair.)

CHAIRMAN CUNNINGHAM: We come to the end of the program. This morning we went through parasitology, bacteriology, pullorum disease, virology, and the practitioner, and now, to wind it up, we will have the regulatory viewpoint in the control of poultry diseases. This topic will be presented by Dr. A. L. Brueckner, of College Park, Md., and is entitled, "A Survey of the Regulatory Control of Poultry Diseases in the United States."

. . . Dr. Brueckner read his paper. . . . (Applause.) (To be published.)

CHAIRMAN CUNNINGHAM: Usually at this time, the retiring chairman presents the gavel to the incoming chairman. Since Dr. Hinshaw is in California, it would be quite a long way to stretch, so I will put the gavel from my left hand into my right hand, and we will consider that the ceremony of transferring the chairmanship.

I believe it is proper also that the officers for the incoming year be present at the platform; so, Dr. Barber, if you will come up as secretary, we will keep the proper etiquette.

I would like to thank all of the contributors to the program for their very generous coöperation, and I can assure Dr. Barber that it is just a matter of a three cent stamp and a letter or two, and that he won't have any undue difficulty in securing a program for next year.

It has been a pleasure to serve as secretary of this Section. I have enjoyed it very much. We thank the audience for their close attention. We also thank the contributors for keeping an eye on the time. It is exactly four o'clock. We hope this program has been helpful and instructive, and that you enjoy the rest of your stay in Michigan.

Do I hear a motion for adjournment?

DR. HENDRICKS: I move we adjourn.

DR. TUCKER: Second the motion.

(The motion was put to a vote and was carried.)

. . . The meeting adjourned at 4:00 p.m. . . .

Section on Public Health

Wednesday Morning, July 13, 1949

The first session of the Section on Public Health, held in connection with the Eighty-sixth Annual Meeting of the American Veterinary Medical Association, convened at the Book-Cadillac Hotel, Detroit, Mich., at 9:30 a.m., Dr. L. W. Rowles, Topeka, Kan., chairman of the Section, presiding.

. . . Strip film, "The Public Health Significance of Foot-and-Mouth Disease," by U.S. Public Health Service. . . .

CHAIRMAN ROWLES: It is gratifying to meet with you here and to find the number present displaying such keen interest in a section whose purpose is to promote the health and welfare of mankind.

We all have indulged in basking under the light of accomplishments made by the outstanding people in our profession and have taken credit to ourselves for their work by saying these are accomplishments of veterinarians. However, there is a common meeting ground for all veterinarians in each doing his best in his respective specialized field, which will reflect credit to the entire profession. Those of us who are interested in the public health aspects of veterinary medicine, and those who are interested primarily in the economic aspects, can meet here for the good of the entire profession. There is much that can be done by each that will help the other, without interference with each one's participation in his chosen branch of our profession.

Every day that a practicing veterinarian aids in the control of communicable disease in animals or the improvement of sanitation, he is helping to accomplish a goal of the public health veterinarian. He may do it knowingly or unknowingly. Every time that a public health veterinarian discovers a condition or situation in the animal population that needs correction and encourages the owner to secure the services of a veterinarian of his choice, he has helped the practitioner economically, furthered his standing in that community, and helped the profession as a whole.

It is my belief that establishment of coöperative relationships with all public health agencies, both state and local, is a responsibility of everyone in our profession. This will work toward the development of a veterinary public health division within the health departments of states or local health departments, as the case may be. This can be done by the local practitioners volunteering their services in an advisory capacity to the respective boards of health. When their value has been recognized, they will be appointed members of the state or local boards of health, which will naturally enhance their standing in their own community and lend prestige to the entire profession.

Engineers have made forward strides in public health work by showing the need for their services, and in their profession there is no line of distinction between a sanitary engineer and engineers in other specialized fields. To each other and to the public, they are all engineers. That is the reason that we so often find veterinarians occupying positions subordinate to engineers. If there is, or has been, any line of distinction between a public health veterinarian and veterinarians in other specialized fields, that line of distinction must be blacked out by a coöperative feeling among all members of our profession. I have a lot of respect for an engineer's ability in engineering lines, but I do not believe that he has any place in administration of an animal health program, and many engineers have acknowledged this to me. There are many borderline problems which affect both the engineer and the veterinarian. They can be worked out more satisfactorily by a coöperative arrangement when both occupy equal status in their health department.

We have many challenging problems in which we are all interested, and in which the value of our services will be recognized by the general public as soon as we make them known. We must show the things that we can do and are doing to promote both the public health and economic welfare of the entire population.

One of these challenging problems is intrastate meat, poultry, and milk control to be developed and administered entirely by veterinary personnel and not under the administrative guidance of an engineer.

Another problem that exists in many parts of the country is the control of rabies. Most cer-

tainly, it is a direct responsibilty of the veterinary profession to control this most dreaded of diseases and eliminate the large economic loss resulting from it and the mental fear and hysteria that exists in the population where there is an outbreak. It is the most unfortunate of all situations when a human being develops symptoms of rabies. Death, I think, is feared and dreaded by all sane members of our population. But the anticipation of death by rabies is a fear in those afflicted, and in their families, that is almost beyond comprehension.

We have another most challenging situation in the control of Q fever. I think we may look forward to distinct advances in our knowledge of this disease and its control measures in a not too distant future and in that we, as veterinarians, must take our share of the responsibility.

Salmonella infections in animals and Salmonella contamination of food products is certainly a problem that we must keep before us until a more satisfactory control and ultimate elimination is accomplished.

Some of the fungus diseases demand our immediate attention. Histoplasmosis is probably outstanding among these. Sufficient work has been accomplished that the knowledge of the entire medical profession has been greatly improved and certain statements in the earlier writings have been proved to be completely erroneous.

These remarks may seem to be a criticism of ourselves and our various state and local health departments. If so, I hope it is constructive and I would, indeed, be derelict if I did not recognize that many state and local health departments have made all of the advances that I have suggested in this paper, and yet, there are many who have not yet done so.

I think it is apropos that we recognize the forward steps made by the United States Public Health Service in recognizing the value of veterinary services in the control of many conditions that affect the health of the public. I am sure that we are all proud of the great forward strides that have been made in this direction. Likewise, the American Public Health Association is recognizing the value of veterinary services and I feel confident that, as soon as we have a sufficient number as members in that Association, we will have a section of our own on a par with the many other sections of this great national organization.

If you forget everything else that I have said this morning, but go home with the firm determination to build a better understanding between the veterinarians of all the specialized fields, it will be for the good of the profession as a whole. Then the other things will come about as a natural sequence. "A house divided against itself cannot stand," but "In unity there is strength."

CHAIRMAN ROWLES: And now to the program. The first paper this morning is "Colorado's Meat Inspection Program," by Dr. M. D. Baum, of Denver, Colo. Dr. Baum. (Applause.)

DR. M. D. BAUM (Denver, Colo.): Dr. Rowles indicated in his opening address that there was a need for the inspection of meat for intrastate movement. I think you will find in your state, as well as in every other state, that this is a crying need. We have come to level our sights at the federal meat inspection service, and have come to use that service as a yardstick.

In so doing we have overlooked, in many instances, the need for a meat inspection service at grass root levels where no meat inspection service has ever existed in the past. It is with that thought in mind that I desire to report to you on the progress of the Colorado program, with the hope that possibly you might find something contained therein that will serve you in good stead.

. . . Dr. Baum read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ROWLES: May I now present Dr. E. R. Price, of Kansas City, Mo., to talk to you on "Encephalitis as a Public Health Problem."

. . . Dr. E. R. Price read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ROWLES: The next paper brings up something that I know we are all interested in. We want the correct information, and I am sure we are going to get it. "Q Fever as a Veterinary Medical Problem," by Dr. R. J. Huebner, of Bethesda, Md.

. . . Dr. Huebner presented his address. . . . (Applause.) (To be published.)

CHAIRMAN ROWLES: We are almost thirty minutes behind schedule. We started that much late this morning. We will get back on schedule by cutting our noon hour a bit short.

The final paper this morning is entitled "Problems of the Milk Sanitation Program," by Drs. J. A. Webb and H. L. Ragsdale, of Philadelphia, Pa. Dr. Ragsdale will present the paper.

. . . Dr. Ragsdale read the paper prepared by Dr. J. A. Webb and himself. . . . (Applause.) (To be published.)

CHAIRMAN ROWLES: We will recess and be back promptly at one o'clock.

. . . The meeting recessed at 12:00 noon. . . .

Section on Public Health

Wednesday Afternoon, July 13, 1949

The final session convened at one o'clock, Dr. L. W. Rowles, Chairman, presiding.

. . . The session opened with a strip film, "Rabies," by the U.S. Public Health Service. . . .

CHAIRMAN ROWLES: This is the last session of our program. We will proceed with the business meeting.

Is there any old business that has come to us from last year which should be attended to? If not, under new business we have had one resolution offered for your consideration. Before we take it up, is there any other new business to come before this group? If not, I will ask the secretary to read the resolution for your consideration.

SECRETARY ZEISSIG (Ithaca, N.Y.):

WHEREAS, The use of animals, including dogs and cats, in research, in teaching, and in public health projects, benefits man and other animals, and

WHEREAS, Many dogs and cats are killed in public pounds, therefore be it

RESOLVED, That dogs and cats that would otherwise be killed in public pounds be made available, under suitable regulations, for intelligent humane use in teaching and research laboratories, and that it be further

RESOLVED, That S-1703 now pending in the Congress of the United States, providing that dogs which would otherwise be killed in the District of Columbia Dog Pound be offered to teaching and research laboratories in that area for intelligent, humane use, be supported by this Section and its passage urged.

CHAIRMAN ROWLES: You have heard the resolution. What is your pleasure?

DR. OSCAR SUSSMAN (Trenton, N.J.): I move the adoption of the resolution.

DR. L. E. STARR (Atlanta, Ga.): Second the motion.

(The motion was put to a vote and was carried.)

CHAIRMAN ROWLES: The next order of business is nominations for section officers. Nominations for a chairman are in order.

DR. D. L. KERLIN (Champaign, Ill.): I Nominate Dr. L. E. Starr, of Atlanta, Ga.

CHAIRMAN ROWLES: Are there any other nominations?

DR. SUSSMAN: Is there anything in the By-laws that prohibits the nomination of the section secretary from becoming chairman?

The reason I ask is that it seems to me the complexity of the sections are increasing each year, and it would be more advantageous to the section if we had some continuity of officers. We don't have now, if we install two new officers each year who would go into office "cold."

If there is nothing to prohibit it, I would like to nominate Dr. Zeissig.

CHAIRMAN ROWLES: I believe there is nothing in the By-laws that would prohibit it. Dr. Zeissig also has been nominated. Are there any other nominations?

DR. BAUM: I move that nominations be closed.

(The motion was severally seconded.)

CHAIRMAN ROWLES: Dr. Zeissig would like to say something.

SECRETARY ZEISSIG: As far as I am concerned, in as much as the next meeting of the Section will be in the deep south, and I am not a very affable individual, I am not sure that if I were to be considered for this position I would be able to fulfill it. On the other hand, I am sure that Dr. Starr would fulfill it very creditably, and, therefore, I would like to withdraw my name from the nomination as chairman.

CHAIRMAN ROWLES: What is your pleasure on Dr. Zeissig's request? We have a motion before the house that nominations be closed. All in favor, put up your right hand. It is carried.

I am ashamed to admit that I am not familiar with the Constitution and By-laws concerning elections. May the election be made by acclamation or the counting of hands, or must it be handled by ballot?

DR. BAUM: I think I can clarify that for you, Dr. Rowles. Some time ago we ran into that problem in electing officers, and the AVMA executive secretary advised us that the nominations were to be made and the selection would be made by the president.

It would be my suggestion that we merely nominate our officers, and turn the names over to the AVMA office for the consideration of the president.

CHAIRMAN ROWLES: Then, in this particular case, we have two nominees. Should we turn both names in to the office?

DR. BAUM: That is correct, Dr. Rowles.

CHAIRMAN ROWLES: Then, according to Dr. Baum, who is more experienced at this than I, that will be the procedure followed.

The next order of business is the nomination of a secretary.

DR. BAUM: I would like to nominate Dr. J. E. Scatterday, of Gainesville, Fla.

CHAIRMAN ROWLES: Are there other nominations?

DR. SUSSMAN: I move that nominations be closed.

DR. FRANK TODD (Arlington, Va.): I second the motion.

(The motion was put to a vote and was carried.)

CHAIRMAN ROWLES: These names will be presented to the AVMA office for consideration for appointment.

Is there any other business to come before this section? If not, we will proceed with the program.

The first paper this afternoon is entitled "Salmonella Disease in Michigan, 1948," by Drs. Fred Leeder and R. W. Menges, of East Lansing, Mich.

. . . Dr. Fred Leeder presented the paper. . . . (Applause.) (To be published.)

CHAIRMAN ROWLES: Thank you, Dr. Leeder.

The next paper, "Psittacosis Infection in Pigeons," will be presented by Dr. Dorland J. Davis, of Bethesda, Md.

. . . Dr. Davis read his paper. . . . (Applause.) (To be published.)

CHAIRMAN ROWLES: Thank you, Dr. Davis.

The next paper is entitled, "The Brucella Abortus Ring Test," by Dr. M. H. Roepke, St. Paul, Minn.

. . . Dr. Roepke read his prepared paper. . . . (Applause.) (To be published.)

CHAIRMAN ROWLES: Thank you, Dr. Roepke.

CHAIRMAN ROWLES: We have run into the time allotted for the questions. I don't think any of our next speakers need special introduction, so I shall simply turn the meeting over to Dr. I. H. Steele.

DR. J. H. STEELE (Atlanta, Ga.): Will the members of the panel please come up? Before proceeding we will have a brief introduction to the problem that we will discuss this afternoon. I wish first to introduce the members of our panel.

(Dr. Steele introduced Drs. L. R. Davenport, Springfield, Ill.; A. E. Heustis, Lansing, Mich.; R. J. Helvig, Washington, D.C.; and Robert Willson, Detroit, Mich.)

. . . The members of the panel read their papers and continued with the panel discussion of the subject. . . . (Applause.) (To be published.)

DR. STEELE: If there are no further questions, I will turn the meeting back to Dr. Rowles. (Applause.)

CHAIRMAN ROWLES: If there is no further business, we stand adjourned.

. . . The meeting adjourned at 4:00 p.m. . . .

COMMITTEE REPORTS

Adopted at the Eighty-Sixth Annual Meeting of the American Veterinary Medical Association Detroit, July 11-14, 1949

Standing Committees

Council on Education

The Council on Education held two meetings in Chicago during the past year. Each meeting was devoted to two days of discussion, which consisted of reviewing inspection reports of the various veterinary colleges and other matters pertaining to continued betterment of veterinary education.

During the last year, five accredited schools were inspected, four of which were on Council probation, and one which was due for its regular three-year inspection. As a result of these inspections, one college was continued on full approval, three colleges were continued on Council probation, and one was placed on public probation. Council probation was continued on the three colleges because they had made some progress and improvement, but still did not fully meet the minimum standards required in "Essentials of an Acceptable Veterinary School." The school that was placed on public probation had made little or no progress since the previous inspection.

Tuskegee Institute was officially inspected for the first time, because it was to have its first graduating class this spring (1949). In addition, two other new schools, at the University of Missouri and the University of Georgia, were inspected at their request and expense. The inspection of these schools was requested principally for the purpose of seeking advice on matters pertaining to their physical plant and organization.

The majority of colleges continue to give satisfactory work in the basic sciences, but some continue to be weak in the clinical courses and far from satisfactory in this respect. However, progress has been made in strengthening the clinical work in most institutions.

With few exceptions, most colleges continue to admit more students than they can train adequately and efficiently in their clinical courses. The administrative authorities argue that this is due to pressure; however, this is not a valid reason since the object of veterinary medicine is to prepare the undergraduate for the practice of veterinary medicine. The Council is giving this matter careful study.

Due to the discrepancy in, and haphazard methods of keeping, clinical records, the clinical staffs of all the veterinary schools were invited to attend the winter meeting of the Council. The purpose of the meeting was to bring about the adoption of uniform methods of reporting diagnoses, nomenclature of disease entities, and of making annual clinical reports. This was a very profitable meeting as it served to iron out many glaring weaknesses that have existed in the past. It is anticipated that from this favorable beginning, continued improvement will take place.

Revision of the "Essentials of an Acceptable Veterinary School" is contemplated. This is necessary because of the curricular changes that are taking place.

During the past year, numerous requests have been received from various sources regarding the standing and recognition of foreign veterinary colleges. Since these schools do not come under the jurisdiction of the Council, it does not, therefore, officially accredit any school other than those that appear on the approved list.

The Council recommends that the following schools, four of which are on Council probation, be approved for the coming year:

1) Alabama Polytechnic Institute, College of Veterinary Medicine.
2) Colorado Agricultural and Mechanical College, Division of Veterinary Medicine.
3) Iowa State College, Division of Veterinary Medicine.
4) Kansas State College, School of Veterinary Medicine.
5) Michigan State College, School of Veterinary Medicine.
6) New York State Veterinary College, Cornell University.
7) The Ohio State University, College of Veterinary Medicine.
8) Ontario Veterinary College, University of Toronto.
9) University of Pennsylvania, School of Veterinary Medicine.
10) Texas Agricultural and Mechanical College, School of Veterinary Medicine.
11) State College of Washington, College of Veterinary Medicine.

The Council recommends that the following schools, which have been placed on a public probationary status, be approved for the coming year:

12) Ecole Médecine Vétérinaire de la Province de Québec, University of Montreal.

13) Tuskegee Institute, School of Veterinary Medicine.

s/W. L. BOYD, *Chairman*
JAMES FARQUHARSON, *Secretary*
W. A. AITKEN — S. W. HAIGLER
SETH C. DILDINE — C. C. HASTINGS
GARTH A. EDGE — M. S. SHAHAN
W. A. HAGAN

Legislation

At the time this report is being written to meet the April deadline, several bills of interest and concern to veterinary medicine and the profession are, or are expected to come, before the 81st Congress. However, the legislative situation is such that not much can be said at this time about the outcome.

Senate Bill No. 5. — This is the so-called socialized medicine, compulsory health insurance, or health legislation which has been debated so widely pro and con in recent weeks before various public groups and forums and in the press. While this bill does not pertain immediately to veterinary medicine, its long range implications are such that they cannot be ignored by the profession.

American veterinarians, being an integral part of the nation's professional, business, and community life are bound to be vitally affected by any action which would threaten the high standards maintained by the medical professions and undermine the quality of services rendered. It seems obvious that, if far-reaching public health services are to be controlled by a powerful federal security administrator at public expense, sooner or later there would be a demand from livestock owners for "free" veterinary services and with probably just as much justification. The Association, therefore, through the Board of Governors and in line with its objectives, has gone on record as opposed to Senate Bill No. 5 and in support of the national education campaign of the American Medical Association. Many other leading organizations and also such agencies as the American Farm Bureau Federation are also on record against this proposed legislation. It is expected that further action and resolutions will be authorized at the annual meeting in July.

Senate Bill No. 522 and Corresponding House Bills.—These bills have for their declared purpose assistance to state and political subdivisions in the development and maintenance of local public health units. These bills have the backing of the National Health Council and include a number of recommendations of that council and of allied public health organizations. Their significance to the veterinary profession is in the possible expanded use of trained veterinary personnel when, as, and if action is taken to set up and maintain county, regional, or other local public units. There is considerable opinion for the inclusion in these units of a veterinarian qualified to advise and supervise veterinary public health aspects of environmental sanitation such as meat and milk inspection and the control of animal diseases transmissible to man. These bills are receiving active consideration and support by the AVMA.

Armed Services Pay Bill.—This legislation, on which committee hearings were in progress as this report is being written, is of real concern to the veterinary profession, since an effort is being made to have the bill include veterinary officers in the extra pay provision accorded the medical and dental corps for the past year as an inducement in obtaining the number of officers needed for the military services. An effort is being made, with the assistance of state veterinary associations, to have the pay bill properly amended.

Federal Grants for Medical Education, etc.—It is understood that legislation will be, or has been, introduced in the 81st Congress similar to S.2588 of the 80th Congress. This bill would have authorized grants and scholarships for medical education and grants for dental, nursing, and public health education. These federal funds would have provided money for instruction (faculty salaries, etc.), construction (buildings, maintenance, etc.), and for state and national scholarships in medicine.

Whether or not it is presently desirable, or unescapable in the near or distant future, that our professional schools in the medical field shall be wholly or in part supported by federal funds is a debatable question. Federal aid to education already exists to a considerable degree, but the extension of such aid by a paternalistic government agency may be viewed with question when it comes to medical, veterinary, and dental education in spite of the no-interference-in-internal-affairs clause contained in S.2588 of the last Congress. In so far as veterinary education is concerned, the matter of federal aid is an important policy consideration for veterinary educators, the Council on Education, and others who are charged with administrative duties, curriculums, educational standards, and entrance requirements. Consequently, this whole matter has been referred to the Association of Deans of the American Colleges of Veterinary Medicine and the Council on Education.

Senate Bill 1103 and H.R. 2945.—This proposed legislation provides for large increases in second class postal rates for the purpose of increasing postal revenues and decreasing the deficit of the Post Office Department. If enacted, it would increase second class rates (under which AVMA publications and many other professional, scientific, educational, and the regular national magazines are mailed) as much as 400 per cent in some cases. Such increases would work a real hardship on associations such as ours, which own and publish their own journals, and would even jeopardize the survival of some. The AVMA has gone on record with the Senate and House Committees on Post Office and Civil Service, which are holding hearings on the bills, expressing strong opposition to measures which would handicap many small publications such as ours. A number of constituent associations have also been very helpful in contacting congressmen on the committees and the outcome of the hearings are awaited with much interest.

H.R. 2303.—This Bill was introduced in the House on March 3, 1949, and would provide for the recognition of the veterinary school at Middlesex University by the Secretary of Agriculture so as to make graduates of the school eligible for appointments the same as graduates of other schools on the list approved by the Department of Agriculture. At the time of writing this report, the bill had been referred to the House Committee on Agriculture and its status had not been determined.

s/J. G. HARDENBERGH, *Chairman*
C. C. FRANKS — G. H. HOPSON
GEORGE W. GILLIE — N. J. MILLER

Therapeutic Agents and Appliances

The activities of this committee have been confined mainly to consultations or correspondence with firms which produce or sell veterinary medical pharmaceutical products, instruments, or appliances. Only one firm has submitted an article for consideration by this committee. The Board of Governors has been consulted about future policies of this committee. The decision of the Board has not been received. The committee has considered, but has not prepared, an outline for use when considering appliances for approval.

S/ROGER P. LINK, *Chairman*
L. A. GENDREAU J. V. LACROIX
R. C. KLUSSENDORF D. K. DETWEILER
JOHN L. WELLS

Public Relations

Your committee takes pleasure in announcing the continuance of worthwhile accomplishments in the public relations activities of the past year.

Individual veterinarians, busy with their every-day activities, cannot be expected to give too much thought to the rapidly specializing problems of public relations as they affect the entire profession in North America. To these busy men your committee can state that, as of today, the veterinary profession is accorded a greater measure of public esteem and appreciation than ever before in history. We invite individual veterinarians to observe evidences of our Association's planned public relations within their own communities. We believe that if such observation is made, they will obtain many specific examples of our efforts to influence public opinion.

Influencing the public opinion of an entire nation is a mammoth task, calling for continued and sustained effort. We are beginning to experience more and more benefits from our work and these benefits will increase materially as time goes on.

Outlet Mediums.—As you know, actual preparation and execution of public relations material is processed by the AVMA office, with the assistance of trained counsel, Mr. L. R. Fairall, Des Moines, Iowa. Our records show that unprecedented numbers of newspapers, magazines, and radio stations gave space and air time to veterinary medical items of public interest during the past year. Several thousand newspapers carried stories based on the Association's weekly releases and reports of subjects presented at the San Francisco convention. The "AVMA Press Service", a monthly clip sheet, is well received by the editors of 5,200 rural newspapers and farm magazines. About 400 radio stations utilized the Association's semimonthly "Farm Radio Briefs" in their broadcasts. All of the editors, either of press or of radio, appreciate that the information given is of true value in curbing the inroads of animal diseases. As a result, all releases now get top-level attention in editorial offices.

Cooperative Radio Activities.—Our Committee is pleased to report that approximately 30 states and Canadian provinces are continuing to use the weekly radio scripts supplied by the AVMA. These interview scripts are broadcast under the sponsorage of constituent state, provincial, or regional veterinary medical associations. It has been estimated that a potential audience of over 100 million people listen to these scripts annually. Furthermore, they have been of great value to the veterinarians who cut the discs for broadcasts, in creating interests of listeners when they hear the voice of their local veterinarian on the radio.

Added Personnel.—Your committee feels that a great step forward has been taken by the addition to the AVMA staff of talented Dr. C. D. Van Houweling as director of professional relations. Our committee understands that Dr. Van Houweling will give special attention to coördinating and extending both inter-professional and public relations. His services have already proved especially valuable in contacting national and regional livestock and agricultural organizations.

Small animal practitioners will be pleased to know that on March 23, 1949, Dr. Van Houweling and Mr. Wm. Ogilvie, secretary of the International Kennel Club and director of the American Kennel Club, teamed in a broadcast under the sponsorage of the Dog Food Division of the American Meat Institute. These discs, lauding veterinary service, will be broadcast over a huge network of local radio stations. The value of such mass impression on public thought can hardly be overestimated.

Vocational Agriculture.—During the past year, your committee met with Director W. T. Spanton and other leaders of the Federal Education Service. We found them to be entirely coöperative and anxious to eliminate any sources of friction between vocational agriculture people and veterinarians. A protocol of understanding was drawn up with the Federal Education Service and approved by both the National Vocational Agriculture Association and the AVMA. This protocol of understanding will serve as a valuable guide line when carried down to state and local levels by constituent associations. Your committee urgently recommends, and with all possible emphasis, that similar conferences be staged at state association levels during the coming year.

Allocation of Committee Personnel.—Each member of your Public Relations Committee has been allocated specific fields of contact. One of the major responsibilities for each member is to keep the AVMA office informed of any notable trends or events within these allocated fields.

Thus, Dr. Kenneth McKay, Berkeley, Calif., has been allocated all western livestock associations and professional activities in the states of the West. Dr. W. M. Coffee, La Center, Ky., has been allocated contacts with the blooded horse interests of the nation, together with contacts with constituent veterinary medical associations. Dr. C. E. De Camp, Scarsdale, N. Y., has been allocated contacts with the dog and cat interests and with veterinary associations majoring in small animal problems. Dr. C. D. Lowe, Washington, D. C., serves as liaison contact between the veterinary profession and the multi-armed departments of government having to do with the livestock industry. Dr. A. H. Quin has been allocated contacts with the biological and pharmaceutical industries, the Pure Food and Drug Administration, and constituent veterinary medical associations.

The chairman of your committee desires to extend special commendation to Dr. De Camp for his efficient and continued activities this past year. Dr. De Camp has sacrificed his own time to participate in many radio broadcasts and other activities directed at furthering public interest in diseases of small animals and toward a greater appreciation of the service rendered by small animal hospitals.

Associated Serum Producers.—Your committee again expresses appreciation for the public education campaign, sponsored by Associated Serum Producers, Inc., through its educational bureau, the American Foundation for Animal Health. This is the sixteenth year in which this extremely constructive campaign has been directed to the people of the nation in behalf of the veterinary profession. We would suggest that all veterinary medical associations and individual practitioners take time to thank Associated Serum Producers for their constructive activities.

Suggested Public Relations Activities for Constituent Associations.—Much can be accomplished if all of our state veterinary medical associations and larger, regional veterinary medical associations will make all possible effort to supplement public relations activities at state and regional levels. Some of our state associations are quite active in initiating and executing public relations. Other state associations have not revised their committee set-up, their funds, or planned activities for many years. We suggest that in planning or revising their activities along this line, constituent associations solicit the counsel and guidance of the AVMA so that efforts may be properly coördinated and not in conflict.

Conclusion.—In our planned, public relations activities, your committee again wishes to stress that the greatest, single promotion of public relations for the veterinary profession is the standard of service rendered by the individual veterinarian in his own community. Every veterinarian must realize that he contributes to the aggregate evaluation of our entire profession by the public. It is, indeed, a pleasure to witness the increasingly high standards of service rendered by individual practitioners in both large and small animal practice. All of us who carry a veterinary degree are profiting by the self-sacrifice and contributions of the generation of veterinarians who preceded us. In turn, the younger generation of veterinarians now coming into the picture will be rewarded by the efforts aimed toward increasing a still broader and firmer foundation of public acceptance for the veterinary profession.

s/A. H. QUIN, *Chairman*

C. E. DE CAMP — C. D. LOWE
W. M. COFFEE — K. G. MCKAY

Poultry

The 1948 Committee on Transmissible Diseases of Poultry of the United States Livestock Sanitary Association gave a comprehensive report on the poultry disease situation, and since this report will appear in the Association's annual proceedings, this committee did not believe it should duplicate the effort.

Last year, the committee assembled information on mortality in the United States and Canada, but due to the advanced date of the AVMA meeting and the necessity of filing reports earlier, it was impossible to compile such information this year.

In recent years and during the war, shortage of feedstuffs was a limiting factor in poultry production. This year, ingredients are plentiful. Emphasis is now placed on quality and efficient production. Disease control remains as important as ever in making this possible.

In anticipation of the future need for veterinarians in the poultry disease research field, the committee would like to emphasize, for the benefit of veterinary students, the opportunities for careers in this phase of veterinary medicine.

Among the newer findings this past year were those in connection with infectious sinusitis of turkeys. This is a disease of considerable economic importance in turkey production. In the past, information concerning the nature of the causative agent or agents has been lacking. Jungherr,[1] Hitchner,[2] and Jerstad and Hamilton[3] have described viruses which they have cultivated in chicken embryos. Delaplane[4] has reported that the virus of the chronic respiratory disease of chickens is capable of infecting turkeys under laboratory conditions and producing a sinusitis. It is hoped that the studies will be continued and it can be determined whether the viruses isolated by various individuals are the same, or different, agents.

Newcastle vaccine became commercially available in July, 1948, and has been used extensively. Sufficient time has not elapsed to obtain information which would enable a proper evaluation of the results of its use.

Reports on avian monocytosis (pullet disease, blue comb, or x disease) in California were made by Worcester and Meyer.[5] Wickware[6] described an infectious granuloma of fowls in Canada.

Jones, of this committee, reports an increase in the economic significance of the various respiratory infections of chickens in California and the need for continued research to obtain information that will result in better control measures. Wickware mentions the appearance of Newcastle disease in Canada, which at the present is being dealt with on a basis of slaughter and compensation.

The report of Howitt, Bishopp, and Kisslung[7] of Newcastle disease in human beings is of interest, both from the public health and from the epizoötiologic aspects of the infection.

s/J. P. DELAPLANE, *Chairman*

C. A. BRANDLY — E. E. JONES
W. R. HINSHAW — A. B. WICKWARE

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Parasitology

As stated in the 1948 report of the Committee on Parasitology, a program was designed to survey the field of practical veterinary parasitology in North America and to bring into focus the main problems that will be met in practice. The committee made this report on the basis of the following four questions:

1) What are the main parasitic diseases of livestock in various parts of the continent?

2) In view of the fact that, in general, animal parasites do not cause clinical disease when a normal host-parasite balance is established, what factors are responsible for the onset of clinical parasitic disease?

3) What is the rôle of insecticidal, anthelmintic, or protozoastatic chemotherapy in any disease?

4) What chemotherapeutic agents can be approved, or tentatively approved, for practical use by veterinarians at the present time?

It is the hope that future committees on parasitology will keep these questions in mind and keep the material up to date, so that veterinarians can look to these reports for guidance in the use of the various chemical agents. In the last report, due to limits of time and space, no consideration was given to the parasitic diseases of the dog and cat. These data are in our report this year, so that all animals which the veterinarian commonly contacts will be covered.

Following the publication of the 1948 report, some suggestions were received. These suggestions have been considered by the committee, and a change has been made in the manner of presentation. The committee decided to make this report in three parts: the first to name and briefly define the parasitic diseases of the dog and cat; second, to list the insecticidal, anthelmintic, and protozoastatic drugs and chemicals that receive the unanimous approval of the committee;* and third, to list the insecticidal, anthelmintic, and protozoastatic drugs and chemicals considered by the committee, but which have not received unanimous approval. These will be listed as they were last year, *i.e.*, A=approval; B=tentative approval pending more data; C=reserved judgment; and D=not approved.

Part 1

The Six Main Parasitic Diseases of the Dog and Cat

Dogs

1) *Ancylostomiasis.*—This condition is caused primarily by the nematode *Ancylostoma caninum.* It is characterized by anemia, general weakness, and emaciation. It is especially severe in animals confined on a relatively small area of moist ground, with poor sanitation. Improved sanitation, alternation of runs, and routine use of anthelmintics (tetrachlorethylene, hexylresorcinol, N-butyl-chloride) are recommended.

2) *Ascariasis.*—This is caused by the nematodes, *Toxocara canis* and *Toxascaris leonina,* often prenatal in puppies. It is characterized by unthriftyness, distended abdomen, anemia, and usually emaciation. Lack of proper nutrition predisposes to ascariasis. Improvement of hygienic conditions and anthelmintic medication with oil of chenopodium, tetrachlorethylene, hexylresorcinol, or N-butyl-chloride are suggested.

3) *Teniasis.*—This condition is caused by Dipylidium spp., Tenia spp., Diphyllobothrium spp., and Echinococcus spp. It is characterized by unthriftiness, shaggy coat, and good appetite. Since all these species require intermediate hosts, it is advisable to prevent contact with these animals. Routine treatment with nemural is recommended.

4) *Demodectic Dermatitis.*—This condition is caused by *Demodex canis* and is commonly found in the dog. Usually starting on the face, it causes loss of hair and thickened, wrinkled skin. Factors predisposing to the condition are debility diseases, age, and application of harsh soaps. Treatment with benzyl benzoate emulsions, or rotenone-bearing substances, and correction of any apparent predisposing factor, is recommended.

5) *Ctenocephalidiasis.*—This condition, which can be very damaging to the host, is caused by the dog flea (*Ctenocephalides canis*) and the cat flea (*Ctenocephalides felis*). These fleas serve as intermediate hosts to Dipylidium spp. Rotenone and pyrethrum powders, benzene hexachloride, and DDT are recommended.

6) *Trichuriasis.*—Trichuriasis is caused by the nematode, *Trichuris vulpis,* which inhabits the cecum. The disease may take the form of diarrhea or constipation, a form of hysteria, or just general debility. Many times, massive infections apparently produce no symptoms. Routine treatment with N-butyl-chloride is advised.

Other conditions important in certain regions are dermatomycosis, pediculosis, filariasis, coccidiosis, giardiosis, and myiasis.

Cats

1) *Ascariasis.*—Caused by the nematodes, *Toxascaris leonina* and *Toxocara mystax,* ascariasis affects young kittens especially. Dietary deficiencies predispose to harmful infections. The correction of deficiencies and poor sanitation, along with anthelmintic medication with tetrachlorethylene or N-butyl-chloride, are indicated.

2) *Acariasis.*—This condition includes the various types of dermatitis caused by *Otodectes cynotis* (ear mite) and *Notoedres cati.* These parasites appear to be primary causes of the disease. For otodectic dermatitis, ointments containing benzene hexachloride or rotenone in oil are excellent; for notoedric dermatitis, lime-sulfur solutions.

3) *Ctenocephalidiasis.*—This is caused by the dog flea (*Ctenocephalides canis*) and the cat flea (*Ctenocephalides felis*). It often results in severe general weakness and anemia in kittens and may be fatal. These fleas also serve as intermediate hosts for *Dipylidium caninum.* Rotenone-bearing substances are safe and effective. The breeding places must be found, and the eggs and immature stages destroyed.

4) *Teniasis.*—Caused by *Taenia taeniaformis* and *Dipylidium caninum,* teniasis apparently causes nervous symptoms and emaciation in severe infections. *Taenia taeniaformis* is transmitted by rodents, and *Dipylidium caninum* by the dog and cat fleas. Anthelmintic medication with nemural is effective.

5) *Coccidiosis.*—Caused by the Protozoa, *Isospora bigemina, Isospora felis,* and *Isospora rivolta,* coccidiosis causes diarrhea in kittens. Sudden exposure to insanitary surroundings contaminated with these organisms appears to be the only necessary factor. The use of sulfonamides to correct the dysentery has proved beneficial.

6) *Ancylostomiasis.*—This is caused by the hookworm, *Ancylostoma caninum* and is characterized by diarrhea, anemia, and general debility. This condition is not nearly so prevalent as in the dog, but at times becomes a problem. Improved sanitation and the use of tetrachlorethylene is suggested.

*No report received from Dr. D. W. Baker, the fifth member of the committee.

Part 2

TABLE I—Insecticidal Drugs and Chemicals that have Received Unanimous Approval by the Committee on Veterinary Parasitology

Chemical	Uses	Chemical	Uses
*Benzene hexachloride	Lice — poultry Lice — cattle Lice — hogs Lice — other stock Spinose ear ticks Sheep keds Mexican chicken bugs Stick-tight fleas Fever ticks Winter ticks Scabies mites — cattle, hogs, sheep Poultry mites Ear Mites — cats, dogs, rabbits	Derris, cubé & other rotenone-bearing substances	Ox warbles Sheep keds Lice — all animals Fleas — all animals Demodex mites Ear mites — dogs, cats Poultry mites — for buildings Fowl ticks — for buildings Scabies — all stock Fever ticks
		Creosote oils & carbolineum	
		Lime-sulfur	
		Arsenical solution	
Benzyl benzoate	Demodex canis Sarcoptic mange — dogs	Nicotine sulfate	Poultry lice Poultry mites
Dichloro-diphenyl-trichlorethane (DDT)	Sheep keds Houseflies Hornflies Winter ticks Bedbugs Lice — farm animals Mexican chicken bugs Fever ticks	Formula N. 62 (Diphenylamine 3½ parts; benzol 1 part; lamp black 2 parts)	Screw-worms
Stock 1029 — A mixture of 10% of pyridine in an adhesive (A-58) which contains rosin, 45%; hercolyn (hydrogenated methyl abietate) 40%; dibutyl phthalate, 15%	Spinose ear ticks	Formula M/S 793F (dyphenyl, 10 parts; benzene, 84 parts; triton 770, 1 part; N-butyl alcohol, 5 parts	Fleece worms
Benzene hexachloride, (technical grade, 12% gamma isomer content) 5 parts; xylol (commercial grade) 10 parts; pure steam distilled pine oil, 85 parts	Spinose ear ticks		

*While BHC is not yet fully approved by the committee for use on dairy cattle, large-scale tests may show, in the near future, that certain grades of this chemical are not objectionable in dairy barns. It may be applied quite safely to beef cattle, sheep, goats, and swine; but thirty days or more should elapse before any dipped or sprayed animals are slaughtered for food purposes. For use against lice on poultry, BHC may be employed as a fumigant, in roost or perch paint form, to great advantage. Exhaustive odor and taste tests conducted in New Mexico have shown that if the material is used as a roost paint according to recommendations, poultry and eggs remain unaffected. Eggs may be eaten at any time after application of the paints to the roosts and perches, while poultry can be killed and eaten four or five days later. If birds are dipped in dilute BHC suspensions for the control of stick-tight fleas and head lice, however, they should not be killed and eaten until forty-five to sixty days have elapsed. Poultry in houses sprayed with BHC for the control of the red mite should also be permitted about thirty days for any possible odor to dissipate. Nesting boxes should be thoroughly aired after spraying to avoid possible contamination of the shells with the BHC odor. In no case should high concentrations of BHC be used in chicken houses or on the birds, and contamination of feeds with BHC must be avoided.

Part 2—Continued

TABLE 2—Anthelmintic Drugs and Chemicals that have Received Unanimous Approval of the Committee on Veterinary Parasitology

Chemical	Uses	Chemical	Uses
Antimony compound (fuadin)	Heartworms — dogs Blood filarids — sheep	Nicotine sulfate combined with copper sulfate	Haemonchus — ruminants
		Oil of chenopodium	Ascarids — dogs
Arecoline hydrobromide	Tapeworms — dogs	Phenothiazine	Strongyles — horses Trichostrongyloid nematodes of ruminants Chabertia — sheep Cecal worms — fowl
Barium antimonyl tartrate	Gapeworms — fowl		
Carbon disulfide	Bots and ascarids — horses	Sodium fluoride	Ascarids — swine
	Stomach worms — swine, horses	Tetrachlor-ethylene	Hookworms — sheep, dogs Ascarids — dogs Trichostrongyles — ruminants
Hexachloro-ethane	Fasciola hepatica — sheep, cattle		
Nemural	Tapeworms — dogs, cats		
N-butyl chloride	Whipworms — dogs Hookworms — dogs Ascarids — dogs		
Nicotine sulfate	Ascarids — fowl		

TABLE 3—Protozoastatic Drugs and Chemicals that have Received Unanimous Approval by the Committee on Veterinary Parasitology

Chemical	Uses	Chemical	Uses
Sulfamerazine	Cecal coccidiosis — chickens	Sulfaquinoxaline	Cecal coccidiosis — chickens — for preventive medication
Sulfamethazine	Cecal coccidiosis — chickens	Sulfathalidine	Coccidiosis — dogs, cats

(Part 3—Committee on Parasitology continued on next page.)

Part 3

TABLE 4—Insecticidal Drugs and Chemicals Given Consideration by the Committee on Veterinary Parasitology

Chemical	Uses	Committee's judgment*	Chemical	Uses	Committee's judgment*
Benzene hexachloride (BHC)	Ox warbles	DDD	Sulfur	Ectoparasites of livestock	DDDD
	Lice — cats	DDB			
Dichloro-diphenyl-trichlorethane (DDT)	Lice — cats	DDDD	Chlordane	Lice — horses	BC
	Poultry mites	DDD		Lice — cattle	BCA
	Mange mites	DDD		Lice — swine	BC
	Fleas — cats	DDDD		Lice — dogs	BC
	Lice — dogs	AAAD		Lice — cats	BC
				Brown dog tick	BC
				Swine scabies	BCB
Benzyl benzoate	Ear mites — dogs, cats	BB	Chaulmoogra oil	Demodectic mange — dogs	C
	Poultry mites	BC			
	Stable flies	DC	Dimethyl phthalate	Ear mange — rabbits	B

*A = Approval. B = Tentative approval pending more data. C = Reserved judgment. D = Not approved.

TABLE 5—Anthelmintic Drugs and Chemicals Given Consideration by the Committee on Veterinary Parasitology

Chemical	Uses	Committee's judgment*	Chemical	Uses	Committee's judgment*
Copper sulfate	Haemonchus	ADA	Santonin	Ascarids — dogs	
2,2' — dihydroxy-5,5' — dichloro-diphenyl-methane.				— cats	DCC
			Tartar emetic	Strongyles — horses	DDD
(Di-phenthane 70)	Tapeworms — dogs	DDB		Blood-filarids — sheep	DDCA
Hexylresorcinol	Ascarids — dogs	CAA			
	Hookworms — dogs	CAA	Carbon tetra-chloride	Liver fluke — sheep	ACB
Kamala	Tapeworms — poultry	DDD	Hydrogen-peroxide	Ascarids — dogs	CD
Lead arsenate	Tapeworms — sheep	CAB	Nicotine-sulfate & copper sulfate	Moniezia — sheep	BC
Male fern	Tapeworms — dogs	DDB	1-diethyl-carbamyl-4-methyl-piperazine-dihydrogen-citrate (caricide)	Ascarids — dogs	B
Oil of chenopodium	Oxyuris — horses	BB		Heartworms — dogs	B
	Ascarids — hogs	ABB			
Phenothiazine	Strongyles — horses	ABA			
	Ascarids — swine	DDB			
	Ascarids — cats	CB			

*A = Approval. B = Tentative approval pending more data. C = Reserved judgment. D = Not approved.

Part 3—Continued

TABLE 6—Protozoastatic Drugs and Chemicals Given Consideration by the Committee on Veterinary Parasitology

Chemical	Uses	*Committee's judgment	Chemical	Uses	*Committee's judgment
Atabrine	Giardia — dogs	CCB	Quaternary ammonium compounds	Coccidiosis — chickens	D
	Giardia — chinchillas	A		Enterohepatitis — turkeys	D
Sulfaguanidine	Cecal coccidiosis	DAC	Neoarsphenamine (Intravenous)	Enterohepatitis — turkeys	C
	Intestinal coccidiosis — chickens	DAD			
	Coccidiosis — calves	C	Acetarsone (Oral)	Enterohepatitis — turkeys	C
	Coccidiosis — sheep	B			
Sulfaquinoxaline	Intestinal coccidiosis — chickens	C	Iodochlorhydroxyquinoline (vioform)	Enterohepatitis — turkeys (preventive)	B
	Enterohepatitis — turkeys	C			
4,4' — diamino diphenyl sulfone	Coccidiosis — calves	C			

*A = Approval. B = Tentative approval pending more data. C = Reserved judgment. D = Not approved.

R. E. REBRASSIER, *Chairman*
H. E. KEMPER W. E. SWALES
R. D. TURK

Nutrition

As there seems to be an increasing tendency to ascribe all, or nearly all, nutritional diseases of domestic animals to some kind of dietary deficiency, your Committee on Nutrition has thought it advisable to bring to your attention some of the information found in a timely article entitled "Conditioning Factors In Nutritional Disease." This authoritative treatise was prepared by Dr. B. H. Ershoff for *Physiological Reviews* and was published in 1948. It represents a critical survey of the literature on factors other than purely dietary deficiencies that may precipitate nutritional diseases of experimental animals and man. The committee is aware that observations made with one species of animal may not apply to another species; yet there can be little doubt that much of the information in this review is applicable to many nutritional diseases of farm animals.

The factors that may interfere with the processes of absorption are:

The Fat Soluble Vitamins.—Certain specific diseases are characterized, among other things, by impairment of absorption of vitamin A and vitamin A-active carotenoids. Examples are celiac disease, sprue, fibrosis and cystic disease of the pancreas, congenital atresia of the bile ducts, intestinal obstruction, ulcerative colitis, dysentery, and diarrhea.

Fever may impair the absorption of vitamin A and vitamin A-active carotenoid. The cause is believed to be impairment of fat digestion.

The presence of bile in the intestine appears to be essential for absorption of carotene but not for vitamin A, although absorption of the latter is more efficient when bile is present.

By dissolving carotene in food, thus causing it to be eliminated with the feces, mineral oil also interferes with absorption of carotene. However, mineral oil does not appear to interfere with the absorption of vitamin A itself.

The same general factors that adversely affect absorption of provitamin A (carotene) also have a deleterious effect on absorption of vitamins D, E, and K. Absorption of synthetic vitamin K products, particularly those that are water-soluble, is not so dependent on the presence of bile in the intestine as is the absorption of natural vitamin K.

The Water Soluble Vitamins.—"Absorption of water soluble vitamins may be impaired by factors resulting in anatomic, chemical, or physiologic changes in the gastrointestinal tract." For example, impairment of absorption of vitamin B_1 may occur as a result of such digestive disturbances as vomiting, diarrhea, alterations of the gastroinintestinal mucosa (ulcerative colitis), and lack of hydrochloric acid.

Subnormal amounts of vitamin C are excreted in the urine of patients suffering from gastrointestinal diseases. This is believed to result from defective absorption of vitamin C, rather than from low intake. Lack of hydrochloric acid also impairs absorption of vitamin C.

Minerals.—The absorption of calcium is primarily dependent upon three factors, *viz.*, (1) vitamin D, (2) the hydrogen-ion concentration (reaction) with-

in the intestine, and (3) other substances in the ration. Vitamin D not only affects the storage of calcium and phosphorus in the bones, but it has a favorable action on absorption of calcium from the intestine. Lack of hydrochloric acid and administration of alkalinizing agents impair absorption of calcium. Certain foods high in oxalic acid, usually in the form of its salts, often impair absorption of calcium. If additional calcium is ingested, the impairing action of the oxalate is diminished.

"Normal nutrition depends more upon an adequate intake of both calcium and phosphorus than upon the calcium-phosphorous ratio; the latter, however, acquires more significance as the absolute values for either element approach the minimum requirement levels. An excessively high phosphorous intake tends to inhibit absorption of calcium, especially if the latter is supplied in insufficient amounts."

On the other hand, a large excess of calcium or magnesium in the ration interferes with the absorption of phosphorus caused by the formation of poorly soluble salts of phosphoric acid.

Absorption of iron may be impaired by (1) too much alkali in the intestine, (2) absence of free hydrochloric acid and bile, (3) a high phosphate intake. Conclusive evidence is lacking, but it is believed that diarrhea and inflammation of the gastrointestinal tract also decrease the absorption of iron.

Miscellaneous.—"Carbohydrates, proteins, and fats are present in the diet largely as complex foodstuffs which must be broken down to their respective monosaccharides, amino acids, and fatty acids before adequate absorption may occur. Factors interfering with digestion will tend, therefore, to impair absorption. The diarrheal diseases are a case in point. In colitis, dysentery, intestinal parasitism, intestinal tuberculosis, sprue, and pellagra, food is rushed through the intestinal tract so rapidly that little time is left for digestion, solution, and absorption."

In vitro, numerous strains of enteric organisms, including *Escherichia coli*, Salmonella, Eberthella, intestinal streptococci, Vibrio, and *Proteus morganii* can decompose vitamin C.

Raw egg white contains a substance, called avidin, that may prevent the absorption of biotin. Cooked eggs do not have this action. There is some evidence that rancid fats inactivate biotin.

The factors that may interfere with utilization are: ". . . malnutrition denotes a deficiency of essential nutrients in the tissue cells rather than in the diet. Any factor interfering, therefore, with the utilization of an essential nutrient may precipitate nutritional deficiency despite the composition of the diet or the adequacy of digestion and absorption."

Examples.—The fat-soluble vitamins require a carrier for proper distribution—such as a suspended lipide or a phospholipide or protein complex. If sufficient lipide carrier is not available, "the efficiency of conveyance may be depressed."

Again, failure of utilization may result from a faulty mechanism of acceptance. "Certain tissues have an affinity for specific nutrients and can accept or concentrate them from the blood or lymph prior to use." Iodine concentration by the thyroid gland, vitamin C by the adrenals, vitamin A by the liver, and vitamin E by heart muscle and mammary gland, or of riboflavin by liver and kidney are examples. "If the mechanism of acceptance is faulty, the efficiency of utilization will be impaired.

Failure of utilization may also be caused by inadequate conversion of essential nutrients into physiologic components. In cirrhosis of the liver, for example, the conversion of carotene to vitamin A is presumably impaired. Sulfonamide therapy may interfere with the utilization of the B vitamins. In the dog, it has been shown that sulfapyridine inhibits the activity of nicotinic acid.

The factors that increase excretion are:

"A number of factors such as polyuria, lactation, excessive perspiration or administration of therapeutic agents may contribute toward malnutrition by increasing the elimination of essential nutrients from the body."

In dogs on a reduced thiamin intake, it has been experimentally shown that forced fluid intake for prolonged periods results in the appearance of symptoms of B_1 deficiency before similar symptoms appear in dogs allowed to drink *ad libitum*.

Lactation may cause serious loss of certain nutrients, *i.e.*, calcium.

Various drugs may increase the excretion of vitamin C. Among these are the salicylates, atropine, aspirin, barbiturates, adrenaline, paraldehyde, the common anesthetics, stilbesterol, estradiol, and sulfonamides.

Excessive loss of protein from the body may occur under a variety of conditions. Examples are (1) hemorrhage, (2) operations and injuries, (3) gastrointestinal obstruction and burns. The plasma proteins may also be depleted in diseases of the kidney.

The factors increasing body requirements (stress factors) are:

"Body requirements for essential nutrients may be increased by physical exertion, fever, drugs, toxins, abnormal environmental conditions, pregnancy, lactation, hyperthyroidism, and related conditions." These increased requirements are called "stress factors." Conditions that are characterized by increase in the basal metabolic rate illustrate this group of requirements. Examples are hyperthyroidism, toxic adenomata, malignancy of the thyroid gland, diabetes insipidus, fever, cardiorenal disease with dyspnea, severe anemias, leucemia, and polycythemia.

"Pregnancy and lactation constitute two additional stress factors which may significantly increase body requirements for essential nutrients. In part, these requirements may be due to increased metabolism; they also reflect, however, an increased utilization in the formation of fetal or placental tissue and increased secretion in the form of milk."

DETOXIFICATION

The hepatotoxic effects of chloroform, carbon tetrachloride, and other toxic substances are explained in part on the basis of a deficiency of the amino acid, methionine, in the liver cells.

THERAPY

"Prolonged parenteral administration of glucose, particularly to patients in a borderline state of nutrition, increases body requirements for thiamin and may precipitate deficiency disease." Excessive consumption of carbohydrate also increases the requirements for thiamin.

". . . .the net result of such factors is an increased body requirement beyond the usual or average range and the precipitation of nutritional deficiencies on diets that would otherwise be adequate were such factors not operative."

We wish to add our endorsement of the recom-

mendations included in the 1948 report of the Committee on Nutrition.

s/JESSE SAMPSON, *Chairman*
A. H. GROTH HUBERT SCHMIDT
H. M. LEGARD M. J. SWENSON

Registry of Veterinary Pathology

The Registry of Veterinary Pathology, established in 1944 at the Army Institute of Pathology, had an active and productive year during 1948. The general objectives of this registry as reported in previous committee reports are to stimulate interest and promote scientific development in the field of veterinary pathology by assembling for study and research: (1) material representing general pathologic anatomy, including vitamin deficiencies, specific diseases of different tissues and organs, and examples of naturally and experimentally induced neoplasia; (2) a complete collection of prepared slides representing the normal histology of different species of animals including domesticated and wild animals, birds, and cold-blooded vertebrates; and (3) material illustrating experimentally induced lesions of infectious diseases. This report will indicate considerable success in attaining these objectives.

In exchange for pathologic materials and pertinent records, the Registry of Veterinary Pathology offers consultative and diagnostic service (when not available locally) to the veterinary profession. An increasing number of veterinarians are utilizing this service and are participating in various activities of the Registry. During the nine-month period starting March 25, 1948, and ending January 1, 1949, a total of 1,671 cases were added to the Registry. This represents a sizable increase in the volume over the 1,296 cases added during the entire preceding year. Generally speaking, the value of each case submitted has increased considerably due to better selection of materials, better care in fixation and handling, and improvement in adequacy of clinical histories. Such cases which are carefully selected and prepared are of considerable value for future teaching and research.

Each animal case which is received at the Army Institute of Pathology is indexed by the I.B.M. card index system. The diagnoses are prepared in accordance with a modification of Jordan's "Standard Nomenclature of Disease and Operations". Each case is indexed by species, breed, sex, anatomic site of the lesion, and by etiologic diagnosis. As of January 1, 1949, a total of 5,974 animal cases have been indexed by this system. Of interest is the following distribution of these cases by species:

Birds	525	Cats	190
Cattle	567	Sheep	83
Dogs	2,046	Swine	174
Goats	19	Reptiles	27
Rodents	959	Fishes	74
Horses	991	All others	319

Total 5,974

The following accessions, grouped by primary etiologic diagnoses, may also be of interest. This includes all species listed above:

Congenital anomalies and normal tissue	1,200
Diseases due to infection	1,468
Diseases due to parasites	283
Diseases due to intoxication	116
Diseases due to trauma	169
Diseases due to circulatory disturbance	66
Static and mechanical abnormalities due to unknown cause	122
Diseases due to metabolic and nutritional disturbances	126
Neoplasms	1,853
Structural changes due to uncertain cause	300
Functional changes due to uncertain cause	5
Diseases due to undetermined cause	266

A monograph, "Veterinary Necropsy Procedures," sponsored by the Registry Committee, is nearing completion. Chapters of this monograph have been written by 14 different authors. This publication will be of value to veterinary students, to laboratory workers, and especially to practicing veterinarians.

The Fellowship of Veterinary Pathology, sponsored by the AVMA at the Army Institute of Pathology, was filled in September, 1948, by A. W. Monlux, D.V.M., M.S. In addition to his work at the Army Institute of Pathology, Dr. Monlux is pursuing graduate work at George Washington University, leading toward the Ph.D. degree. His training in pathology and his research problems will be completed within the Army Institute of Pathology. The excellent training opportunities in veterinary pathology afforded by the Army Institute of Pathology are being recognized by an increasing number of veterinarians who have visited the Army Institute of Pathology at various times to study specialized problems.

It should be reiterated to the veterinary profession that the facilities of the Army Institute of Pathology are available to veterinarians for study or research. A qualified man who is interested in studying any phase of the collection during visits to Washington is invited to do so. However, in order that proper facilities be available during the period selected, any veterinarian who desires to study at the Army Institute of Pathology should communicate with the Director, Army Institute of Pathology, Washington 25, D. C., prior to his visit.

As was indicated in the committee report for last year, a policy was inaugurated to improve the quality and kind of case reports in the veterinary literature and particularly to emphasize correlation of clinical and pathologic data in such reports. This is being done by selection of certain cases from the Registry for particular attention. When such a case is selected because of outstanding value, the contributor is asked to prepare a case report over his own signature. The pathologic findings are then added by the Registry staff. Photographs and photomicrographs are made, and the manuscript is edited and returned to the contributor. The JOURNAL has featured these cases in a way to indicate that they are filed in the Registry of Veterinary Pathology. An increasing number of cases are being received which are suitable for publication. Limitations of personnel have prevented selection of as many cases as desired, but it is expected that a greater number of

such cases may be published during the coming year.

Of considerable interest to the Registry of Veterinary Pathology is the expansion of the "Follow-up Unit" of the Army Institute of Pathology. By using the facilities of this Unit, it is possible to follow a case efficiently from the time of its original acquisition by the Registry to the death or disposition of the animal. By this means, it is expected that the natural history of many animal diseases can be better determined. This is particularly true in those rare diseases which are infrequently encountered by individual veterinarians or in individual clinics. In those cases selected for follow-up, the contributor is asked to keep in touch with the client in order to be able to get current information on the status of the patient whenever necessary. A routine request for such information is sent to the contributor at regular intervals. All information that is received is placed with the records of the case, where it is available for future research.

The financial support of the Registry by the Association has in previous years required only $1,000 annually plus an additional $50 for secretarial services for the chairman of the committee. In view of the greatly increased activity in the consultative and diagnostic service and anticipated needs in teaching materials in the coming year, it is requested that $1,500 be appropriated for this next year. It is further requested that the usual $50 be supplied the chairman of the committee for secretarial services.

The latest meeting of the Committee on Registry of Veterinary Pathology was held at the Army Institute of Pathology on February 27, 1948. All members of the committee were present.

s/WILLIAM H. FELDMAN, *Chairman*
MAJOR T. C. JONES OSWALD L. OSTEEN
COL. JAMES E. ASH, ex officio

Biological Products

This committee has a difficult assignment to perform the duties and functions expected of it. It is assumed that among its duties is the examination and approval of the vast array of biological products available for use by veterinarians. No facilities exist for the performance of such functions except as may be available to a very limited extent by reason of some members of this committee having connections with a commercial, biological laboratory or public institution. These organizations usually do not have any funds, personnel, or facilities that can be diverted to such extraneous activity. No biological products have been submitted to the committee this year for consideration.

As matters now stand, *the profession is almost entirely dependent upon the integrity of the ethical manufacturer* and the regulatory controls that may be set up by official, national, or state organizations or journal papers prepared by the sponsors of biological products. Local emergencies or public demands may put a product on the market before its effectiveness and limitations are well established. One member of this committee feels that veterinary practitioners would welcome some yes and no answers on many of the newer products on the market, such as intradermal distemper vaccine, wart vaccine, Newcastle disease vaccines, and others.

Among the long list of veterinary biological products on the market, there appear to be some that should be critically examined in respect to clinical or immunogenic value under controlled conditions.

Heretofore, much attention has been directed toward production facilities, and formulas but not enough to potency of the marketed product. Many bacterin formulas carry several bacterial species usually found associated as secondary invaders of some primary disease. As an example, who has evaluated the immunogenic value of the individual constituent bacterial species included in some of the mixed respiratory bacterins?

Fortunately, the biological product manufacturers are embarking on an extensive program directed not only toward development of new and more effective biological products, but also improvement of some of the older accepted ones. No doubt, in some instances, there are certain biological products of questionable value and they are so recognized by the manufacturers and profession. But demands from some quarters have forced continued production to meet competitive conditions. Fortunately, most of the manufacturers have the highly trained personnel and equipment in most instances to put their own houses in order.

The Division of Virus-Serum Control of the Bureau of Animal Industry has revised (B.A.I. Order 381, effective March 1, 1949) the Virus-Serum Toxin Act, approved March 4, 1913, in order to clarify and consolidate into one document the regulations and instructions heretofore issued.

With the increased recognition of virus diseases among animals comes the demand for forms of vaccine that will suppress the ravages and spread of such diseases. Some viruses have little or no immunogenic value when inactivated or killed by physical or chemical agents. Therefore, either modified or virulent forms of active virus must be used. Until more is known, we believe that the distribution and use of vaccines consisting of virulent or modified live virus should be kept under control of the proper regulatory or sanitary officers and under professional supervision. Until some definite facilities, trained personnel, laboratory and test animals are provided, this committee must function in a more or less perfunctory or advisory manner. This association might give consideration to the formation of a joint council on biological products and pharmaceuticals. This council should be provided with some funds and empowered to grant subsidy to competent individuals or institutions for critical examination of new products and, in turn, make proper recommendations regarding their use and limitations.

s/L. R. VAWTER, *Chairman*
GLEN L. DUNLAP D. I. SKIDMORE
G. H. GOOD F. H. SUTTS

Special Committees

History

The scope of the duties of this committee has never been defined but has been left to the suggestions of various presidents of the Association and to the judgment of the chairmen of the committee. Fortunately, the chairmanship over the years has been largely in the hands of Dr. L. A. Merillat and, as a consequence, a tremendous amount of work has been done by him individually. Were it not for him, with all respect to the work of Foster and others who have from time to time been on the committee, it is doubtful that anything worthwhile would have been produced.

The attention of the Association is further called to the fact that this committee is appointed each year by the president of the Association, to serve one year and, quite naturally, the membership is subject to change with each president. The committee appointments are published in the October issue of the JOURNAL. If this is the first knowledge the appointees have of their responsibilities and since the reports of all committees must be turned in to the Association by April or May, the committee actually serves about six months. Distributed as they are, throughout the country with no opportunity to meet at annual meetings of the AVMA (the tenure of the old committee having expired and the new one not yet appointed), no planning or assignment of duties can be accomplished.

The work involved in research, compiling, writing, editing, and printing a history of the veterinary profession in this country is a work of great magnitude requiring many years to accomplish. Reducing it to some of the phases involved, it means writing the story of:

The American Veterinary Medical Association.
The state and provincial associations.
The affiliated and related organizations.
The livestock sanitary laws and their development in each state and province.
The U. S. Bureau of Animal Industry.
The Veterinary Corps (U. S. and Canada).
Development of veterinary literature.
Veterinary education.
Biographies of outstanding veterinarians.

Some of this work, *viz.*, the U. S. Bureau of Animal Industry, the Army Veterinary Corps, histories of some of the state associations and some of the colleges, etc., has already been partially or completely covered.

Obviously, such work cannot be accomplished to any degree of completeness on a voluntary basis, since no one has the time and necessary funds to contribute to such purposes, the cost of which may run from $25,000 to $50,000.

In summary, the committee recommends:

1) That a definite plan be drawn, outlining what the committee is expected to do. This can be done by the committee and submitted to the Executive Board and House of Representatives for approval.

2) That the committee be made permanent and members be appointed for a five-year period, probably by staggering the tenure of office.

3) Give the committee authority to employ full-time help for research and editing.

4) Assign a sufficient fund to carry on the work. The amount necessary should be estimated by the committee as one of its first duties. This amount may be assigned to the committee as required, but the fund could be started at once by earmarking a certain amount yearly for the purpose.

s/JOSEPH M. ARBURUA, *Chairman*
F. T. CANDLIN L. A. MERILLAT
B. L. GITTINGS J. R. MOHLER
JOHN H. WHITLOCK

Nomenclature of Diseases

The committee has, until the current year, concerned itself chiefly with the development and formulation of a plan or system for classifying, codifying, and cataloging the diseases of animals. After several different schemes were studied, the system chosen is one patterned after that used in the "Standard Nomenclature of Disease" which was developed by the National Conference on Nomenclature of Disease, and was first held under the auspices of the New York Academy of Medicine but has since been taken over and sponsored by the American Medical Association.

Because of certain inherent differences between human beings and animals with respect to their structure and diseases, the "Standard Nomenclature of Disease" cannot be transferred to the veterinary field *in toto*. For this reason, it has been necessary to modify and revise many of the items listed in order to meet the requirements of the veterinary medical field. Anatomic parts and regions of the bodies of animals are not strictly the same at all points and the etiologic agencies are likewise different at some points or areas. On the other hand, the similarities are so great that it would be a mistake to set up a system of classification that departed much from the Standard.

During the current year, the committee was privileged to meet in Chicago for organizing the work that is necessary to make the modifications and revisions. Sections of the work have been parcelled among the members most suited for their assignments. Some of the sections have been completed. It is estimated that the full and complete report will require the publication of a manual of between 700 and 800, 5 x 7 pages of 9 point type.

It seems advisable that a few examples of the arrangement of the material as it will appear in the final report constitute a part of this report. The first is taken from a section in the topographic, and the second from the etiologic, classification.

Topographic Classification

SYSTEM I

1 Diseases of the integumentary system (including subcutaneous areolar tissue, mucous membranes of the orifices, and the mammary gland).

10 Combines sites.
100 Skin and mucous membrane.
101 Skin and muscle.
102 Skin and lymphatic system.
103 Skin and subcutaneous tissue.

*Subdivisions have been omitted in these examples.

11 Skin proper.
110 Skin, generally.
111 Epidermis and papillary body.
112 Epidermis.
113 Papillary body.
114 Cutis.
115 Stratum corneum.
116 Elastic tissue.
117 Deeper cutis and subcutaneous tissue.
118 Lymphatics of skin.
119 Blood vessels of skin.
12 Superficial mucous membranes.*
13 and 14 Regions of the skin.*
15 Glands of the skin and superficial mucous membranes.*
16 Hair and feathers.*
17 Hoofs, claws, and horns.*
18 Subcutaneous areolar tissue.
19 Mammary gland.
190 Mammary gland, generally.
191 Parenchymatous tissue.
192 Interstitial tissue.
193 Lactiferous sinus (cistern).
194 Teat.
1941 Canal.
1942 Duct.
1943 Sphincter.

Etiologic Classification

CATEGORY I

1 Diseases due to a lower plant or animal parasite.
10, 11, 12, 13 Diseases due to a lower vegetable organism (Eubacteriales and Mycobacteriaceae).
100 Generally or unspecified (acute infection, purulent infection).
101 *Diplococcus pneumoniae.*
102 Streptococcus (including anaerobic streptococci and enterococci).
1027 Hemolytic streptococci (*beta*).
10271 *Streptococcus pyogenes.*
10272 *Streptococcus zooepidemicus.*
10273 *Streptococcus agalactiae.*
10274 *Streptococcus equi.*
10275 *Streptococcus canis.*
1028 Nonhemolytic streptococci (*gamma*).
10281 *Streptococcus dysgalactiae.*
10282 *Streptococcus uberis.*
(Other organisms have been omitted in this example).
14 Diseases due to a spirochete (including spirella).*
15 Diseases due to a protozoan.*
16 Diseases due to a specific filterable virus.
160 Generally and unspecified.
16011 (fowlpox).
160111 (pigeon pox).
160112 (turkey pox).
160113 (canary pox).
16012 (variola).
(Other viruses have been omitted in this example).
18 Diseases due to Rickettsia.*

CATEGORY 8

80 New growths.
A) Nonepithelial neoplasms.
1 Differentiated.
81 Originating in connective tissue.
810 Fibroma.
811 Fibrosarcoma.
812 Lipoma.
813 Liposarcoma.
814 Myxoma.
815 Myxosarcoma.
816 Chondroma.
8161 Osteochondrosarcoma.
817 Chondrosarcoma.
818 Osteoma.
819 Osteogenic sarcoma.
81x Giant cell tumor.
82 Originating in specialized mesenchymatous tissue.*
83 Originating in muscle tissue.*
84 Originating in nerve tissue proper.*
B) Neoplasms derived from a serous surface, joint cavity or lymph node.*
C) Neoplasms arising from fetal anlage of an organ.*
D) Epthelial neoplasms.*
E) Mixed neoplasms.*
F) Teratoma.*
G) Unclassified neoplasms.*

*Subdivisions have been omitted in these examples.

*Subdivisions have been omitted in these examples.

Without study of the use and application of a system such as has been cited with appropriate examples, in only a few areas to be sure, the uninitiated may fail to appreciate its merit. The value of a system of this kind to a clinic or hospital that is interested in recording and tabulating its case records should be apparent.

S/H. C. H. KERNKAMP, *Chairman*
F. R. BEAUDETTE — CARL OLSON, JR.
C. L. BLAKELY — BENJAMIN SCHWARTZ
I. A. MERCHANT — H. C. STEPHENSON
FRANK THORPE, JR.

Food and Milk Hygiene

During the year, the Special Committee on Food and Milk Hygiene has reviewed the problems associated with the regulatory aspects of veterinary hygiene pertaining to meat, poultry, and milk production.

To further implement the proper conduct of meat inspection, drawings and specifications have been prepared indicating minimum basic sanitary requirements for the conduct of adequate antemortem and postmortem inspection of meat for human consumption. When approved by the Executive Board, the committee recommends that these plans and specifications, and the explanatory notes, be prepared by the committee for publication in the JOURNAL.

The committee has previously (1) developed an outline for the preparation of legislation and a code for the inspection of human food; (2) held a seminar in meat and poultry inspection for instructors in meat hygiene from the veterinary colleges in the United States and Canada; and (3) urged the Federal Meat Inspection Service to employ veterinary students between their junior and senior years.

The committee recognizes that the four basic steps necessary for the establishment of adequate food inspection systems are: (1) proper legislation and adequate financing; (2) proper administration; (3) properly trained personnel; and (4) proper facilities for conducting the inspection.

The committee has in the past made recommendations for proper legislation and administration. The committee's efforts along educational lines is necessarily somewhat limited; however, the meat inspection seminar held last year for personnel teaching meat inspection at the various veterinary medical colleges, and the committee's recommendation that veterinary students be employed by the Federal Meat Inspection Service, are examples of the committee's educational work.

We are pleased to report that Civil Service examinations for veterinarian trainees were announced in January and February, 1949. Examinations for students who were completing their sophomore and junior years were held later.

The students would render service in all phases of antemortem and postmortem inspection with the exception of final inspection. They would work under the supervision of trained veterinarians who are given the responsibility of training these students in all phases of antemortem and postmortem inspection.

Students who have completed their sophomore year in veterinary medicine would be employed in grade SP-5 with a salary of $2,724.00 per annum, and those who completed their junior year in veterinary medicine at grade SP-6 with a salary at the rate of $2,974.80 per annum. The students would receive a probationary appointment leading to permanent Civil Service status and would be subject to the Retirement Act. Appointees would be furloughed or placed on leave without pay at the beginning of the fall term for the purpose of continuing their undergraduate studies. When those who are appointed in grade SP-5 have completed their junior year in veterinary medicine, they could be recalled for summer employment and promoted to grade SP-6 without further examination. When those serving in grade SP-6 have completed their academic training in veterinary medicine, they could be recalled for regular full-time employment and promoted to grade P-2 without further examination. The entrance salary for grade P-2 is $3,727.20. Because of uncertainty regarding necessary appropriations, no veterinary students had been employed by the Federal Meat Inspection Service at the time of this report.

Fifty-two veterinary trainees of grade SP-5 and 45 of grade SP-6 have been employed by other divisions of the Bureau.

The committee commends the Bureau of Animal Industry for making the employment of veterinary students possible.

In view of these previously mentioned actions, it seemed to be the appropriate time to completely review the basic plant facility needs and supply them to veterinarians who are interested.

Poultry Inspection.—The committee recognizes the need for developing recommendations embracing legislation, administration, education, and the plant facilities needed for adequate poultry inspection and making them available to those interested. The committee recommends this as a future project.

Milk Inspection.—The committee would like to determine to what extent milk and milk products are pasteurized in the United States. It proposes to use the following questionnaire next year to gather this information.

State ..... Date .....
Department reporting .....

A. Total production for one year (most recent available):

	Amt.	% pasteurized
1. Fluid milk for bottling and sold as milk, cream, buttermilk, etc.	.....gal.	.....%
2. Frozen desserts	.....gal.	.....%
3. Cheese (including cottage cheese)	.....lb.	.....%
4. Butter	.....lb.	.....%

B. Total out-of-state exports for most recent one-year period available:

1. Fluid milk	.....gal.
2. Cream	.....gal.
3. Condensed milk and skimmed milk	.....gal.
4. Powdered milk	.....lb.
5. Frozen desserts	.....gal.
6. Butter	.....lb.
7. Cheese (including cottage cheese)	.....lb.

I (do, do not) wish to be sent a copy of the report on this study.

(Signature)

The organizations from which the committee may request this information are the: State Department of Agriculture, State Department of Health, and the state agricultural colleges.

A suggested cover letter for the questionnaire has been drafted by one member of the committee, and is presented for consideration:

> The Milk and Food Hygiene Committee of the American Veterinary Medical Association, composed of representatives of the AVMA, the U.S. Department of Agriculture, and the U.S. Public Health Service, is making a study of the amount of milk production in each of the various states, the amount of milk distributed in various forms, such as bottled milk and milk products, butter, cheese, frozen desserts, etc., and the extent of pasteurization of each of these items.
>
> Inclosed is a questionnaire which we shall appreciate having you fill out as completely as possible and return to this office. If you can supply only a part of the information, please do so. We shall attempt to obtain the balance of the information from other sources.
>
> The compilation of the figures submitted by the states in answer to the questionnaire should provide information that will be of interest to you. Therefore, please indicate on the form whether or not you would like to have a copy of the completed tabulation sent to you.

The committee feels that the collection of this data will be of value to veterinarians in the conduct of food inspection.

We urge the continuance of the Special Committee on Food and Milk Hygiene.

S/H. E. KINGMAN, JR., *Chairman*
B. C. PIER
C. H. PALS
E. M. LYNN
J. E. STEELE
H. E. SHEPHERD

Diseases of Wild and Furbearing Animals

This committee is pleased to report that a new course, Diseases of Furbearers, has been added to the curriculum of the School of Veterinary Medicine, Washington State College, Pullman, Wash. It is being taught by Dr. John R. Gorham and covers management of fur animals, sanitation, heredity, physiology, surgery, laboratory techniques, bacterial, nutritional, and viral diseases, poisoning, vices, and miscellaneous. This is an encouraging step in the right direction that it is hoped other colleges will follow. These courses should also include diseases of wild animals in general as well as those of zoo animals. There is a growing demand for service in this field, perhaps only exceptionally full-time, but often as part-time occupations and, in numerous instances, in an advisory capacity. Our profession should do all it can to supply adequately trained personnel. The current shortage of veterinarians is not going to last forever, and undoubtedly there will someday be an ample supply of veterinarians and some of these men could and should pursue wildlife work.

Some progress has been made in the preparation of a textbook as suggested in last year's committee report. Certain chapters have been completed and a large bibliography collected. The committee has delegated the following to be responsible for the compilation of specific sections of the book:

Diseases of Zoo Animals: Dr. Leonard J. Goss, Zoölogical Park, New York 60, N. Y.

Diseases of Fur Animals: Dr. J. R. Gorham, School of Veterinary Medicine, Pullman, Wash.

Diseases of Wild Animals and Birds: Dr. E. R. Quortrup, P. O. Box 2828, San Diego 12, Calif.

These men, in turn, will solicit material from individuals who are qualified and willing to contribute to the respective fields. It is hoped that the book may be completed within the coming year.

The committee has also been active in answering correspondence relative to diseases of wildlife and in disseminating information through numerous public meetings.

The committee recommends that the work started be continued, and that the AVMA assist in the publication of the prepared textbook when the manuscript has been completed.

s/E. R. QUORTRUP, *Chairman*
H. F. KEAGY — L. J. GOSS
A. C. SECORD — S. G. STEPHAN

Diseases of Food-Producing Animals

It was the suggestion of President Hurt that this committee consider coördinating its activities with already existing groups interested in morbidity and mortality studies. Two other organizations having committees assigned to such studies are the National Research Council and the U.S. Livestock Sanitary Association.

Reports of these organizations and of committees of the AVMA in previous years have repeatedly called attention to the importance of reliable information on morbidity and mortality of livestock and the difficulties encountered in the collection of such information. There is general agreement that existing facilities must be more generally used, and that a number of problems in collecting and assembling data must be solved in order to compile reliable statistics.

One important field in the study of animal diseases which needs greater attention as a basis for reliable data is that of epizoötiology. Your committee believes that interest in epizoötiologic studies should be encouraged as a field research. The AVMA does not, at the present time, have a fellowship in this field. It is the recommendation of this committee that the AVMA, through its Research Council, earmark a fellowship for epizoötiologic studies.

The committee also undertook a survey of the states on the occurrence and prevalence of several diseases of sporadic nature. A few of the diseases are those which have only recently received the attention of the veterinary profession; the others have been reported from time to time, but little or no information is available on their area distribution.

The diseases covered in the survey were (1) hyperkeratosis (x disease); (2) Aujeszky's disease, (3) malignant catarrhal fever, (4) sporadic bovine encephalomyelitis, (5) bovine leptospirosis, (6) Q fever, (7) virus dysentery, and (8) ictero-anemia of swine. The questionnaires were sent to state officials, diagnostic laboratories, veterinary schools, and veterinary science departments. At least one reply was received from each of 43 states.

A brief summary of each disease considered in the survey follows:

1) *Hyperkeratosis* (x disease) of cattle is an insidious chronic disease with a course of several weeks to three months or more. There is loss of condition, poor appetite, depression, and progressive thickening of the skin over the upper two-thirds of the body. The skin changes are those of hyperkeratosis. Other lesions are papillary proliferations of the mucosa of the mouth and esophagus, lining of the bile ducts and gall bladder, proliferations and fibrosis of smaller bile ducts, thickening of the intestinal mocosa, and cystic dilatation of collecting tubules in the renal cortex.

Hyperkeratosis was first recognized as a new disease entity in New York state in 1941 as reported by Gibbons and by Olafson in 1947. A news release of the U.S. Department of Agriculture in October, 1948, reports a morbidity of 31 per cent and mortality of about 59 per cent of those affected in 26 herds totaling 4,120 cattle in five southeastern states. At the time of that release, the disease had been reported in 32 states.

Of the 43 states reporting in the present survey, 31 recognized the disease, 30 of them having experienced outbreaks in 1948. Two additional states reported its probable occurrence. A total of 104 outbreaks and 991 cases were listed by 15 states. There was no agreement concerning environmental conditions associated with the occurrences. There were two comments of especial interest regarding outbreaks. One reporter observed that all animals affected were either dehorned or castrated. In another state reporting five outbreaks, all of the herds were receiving bread crumbs and stale bread from the same bakery.

2) *Aujeszky's disease* (pseudorabies) is a disease designated as "mad itch" and has been recognized for many years. Shope studied an outbreak in Iowa in 1930, proving the cause to be a virus and related to the pseudorabies of Aujeszky in Hungary. Epizoötiologic studies demonstrated that the infection was rather prevalent among swine of midwestern

states and that the sporadic cases in cattle occur in animals having contact with swine. Wild rats are also susceptible and play a part in perpetuating and spreading the virus.

Except in very young pigs, most infections in swine are so mild that they are not noticed. The disease in cattle is highly fatal but apparently not transmissible within the species under natural conditions. An intense pruritis of a limited skin area is usually the first symptom, although cases without pruritis have been reported. The animal shows progressive weakness with death occurring within thirty-six to forty-eight hours after first symptoms. Various nervous symptoms are commonly noted during the short course.

Twenty-one of the 43 states reporting have experienced losses from Aujeszky's disease, nine of them in 1948. The number of outbreaks were low.

3) *Malignant catarrhal fever*, a sporadic disease of cattle, has been recognized in the United States for many years. It is characterized by inflammation of the mucous membranes of the respiratory and digestive tracts. Associated with the mucous membrane involvement are inflammatory reactions in the brain, liver, kidneys, and lymph nodes. The morbidity is usually low in herds in which it appears, but mortality is very high among those affected. While the etiologic agent is considered to be a virus, very little is known regarding the epizoötiology.

In the present survey, 18 states report having had cases, ten of them in 1948.

4) *Sporadic bovine encephalomyelitis* was first de-

Table 1—Occurrence of Sporadic Diseases in the United States

	X disease	Aujeszky's disease	Malignant catarrhal fever	Sporadic bovine encephalitis	Lepto-spirosis	Q fever	Virus dysentery	Ictero-anemia
Alabama	XX	X	.....	.....	.....	.....	.....	.....
Arizona	XX	.....	.....	.....	XX	.....	.....	.....
Arkansas	XX	X	.....	.....	.....	.....	.....	.....
California	.....	X	.....	.....	S	XX	.....	X
Colorado	XX	.....	XX	.....	XX	XX	XX	.....
Connecticut	XX	.....	X	.....	X	.....	.....	.....
Delaware	.....	.....	.....	X	.....	.....	XX	.....
Florida	XX	XX	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	.....	.....
Idaho	XX	XX	.....	XX	XX	XX	.....	.....
Illinois	XX	XX	XX	XX	XX	.....	.....	X
Indiana	XX	X	X	XX	.....	.....	.....	XX
Iowa	XX	XX	XX	XX	.....	.....	S	XX
Kansas	XX	X	X	.....	XX	.....	XX	X
Kentucky	.....	.....	.....	.....	.....	.....	.....	.....
Louisiana	XX	XX	.....	.....	.....	.....	.....	.....
Maine	.....	.....	.....	.....	.....	.....	.....	.....
Maryland	XX	.....	.....	X	.....	.....	XX	.....
Massachusetts	.....	.....	.....	.....	.....	.....	.....	.....
Michigan	XX	X	XX	X	.....	.....	S	.....
Minnesota	XX	XX	XX	.....	.....	.....	XX	.....
Mississippi	.....	.....	.....	.....	.....	.....	.....	.....
Missouri	XX	X	.....	.....	.....	.....	.....	XX
Montana	S	.....	XX	.....	X	.....	.....	.....
Nebraska	S	.....	.....	.....	.....	.....	.....	X
Nevada	.....	X	X	.....	.....	.....	.....	X
New Hampshire	.....	.....	X	.....	.....	.....	S	.....
New Jersey	X	.....	.....	.....	.....	.....	.....	.....
New Mexico	XX	X	.....	.....	X	.....	.....	.....
New York	XX	.....	X	.....	.....	.....	X	.....
North Carolina	.....	.....	.....	.....	.....	.....	.....	.....
North Dakota	XX	.....	XX	.....	.....	.....	S	X
Ohio	XX	X	XX	S	XX	.....	S	X
Oklahoma	XX	XX	.....	.....	.....	.....	.....	.....
Oregon	.....	.....	.....	.....	.....	.....	.....	.....
Pennsylvania	XX	.....	.....	.....	XX	.....	.....	.....
Rhode Island	.....	.....	.....	.....	.....	.....	.....	.....
South Carolina	XX	.....	.....	.....	.....	.....	.....	.....
South Dakota	.....	X	X	X	.....	.....	.....	XX
Tennessee	XX	X	.....	.....	.....	.....	XX	.....
Texas	XX	XX	X	X	X	X	.....	.....
Utah	XX	.....	.....	.....	.....	.....	.....	.....
Vermont	XX	.....	.....	.....	S	.....	.....	.....
Virginia	XX	.....	.....	.....	XX	.....	XX	.....
Washington	.....	.....	XX	.....	.....	.....	.....	.....
West Virginia	.....	.....	.....	.....	.....	.....	XX	.....
Wisconsin	XX	XX	XX	XX	.....	.....	XX	.....
Wyoming	XX	.....	.....	.....	.....	.....	S	.....

X — has been diagnosed. XX — diagnosed in 1948. S — suspected.

scribed in 1940 by McNutt and coworkers as having occurred in several herds in Iowa. The symptoms are principally of a nervous character with lack of coördination as the chief manifestation. In addition to encephalomyelitis, generalized serofibrinous peritonitis and pleuritis are characteristic lesions. Younger animals are most susceptible. Usually, several animals become affected during the course of an outbreak in a herd with a mortality of approximately 50 per cent of those affected. The causative agent is a virus.

This disease has been recognized in ten states; six reported outbreaks in 1948.

5) *Bovine leptospirosis* is a disease entity characterized by hemoglobinemia and hemoglobinuria in the acute fatal form and has been recognized in several states in recent years. Leptospiras have been demonstrated by several workers in specially stained tissue sections from a number of cases, although conclusive evidence that they are the specific causative agent has yet to be presented in this country. The disease in Texas described by Mathews was proved to be infectious and contagious. The microscopic pathology resembled that of canine leptospirosis. According to Mathews, about 75 per cent of the total morbidity is a mild form characterized by fever for one to two days, diarrhea for one to six days, poor appetite, and marked loss of weight. Some outbreaks have assumed epizoötic proportions.

In the present survey, eight states reported the disease in 1948, while 12 states have diagnosed leptospirosis either clinically or by laboratory procedures. Two additional states have suspected its occurrence.

6) *Q fever* is a rickettsial disease resident in nature and communicable to various domestic animals and man. It has assumed almost worldwide importance in the short period since its recognition. Parker and coworkers have prepared a survey of the problem which appeared in the February and March, 1949, issues of the JOURNAL. Several human outbreaks have occurred in the U.S. in the past few years among laboratory workers, packing house employees, and stock handlers. In North America, spontaneous infection has been demonstrated in cattle but may occur to some extent in sheep and goats and possibly other animals. Proximity to dairies, by occupation or residence, has been a factor in more than 50 per cent of the human cases in southern California. Thirty per cent of the human cases there used raw milk.

Most of the infections in cattle are inapparent. Parker reports the symptoms in milk cows infected experimentally *via* milk ducts as a systemic reaction of brief duration preceding and accompanying an acute phase of mastitis. Systemic reactions were mild fever, slight serous nasal and lacrimal discharges, moderate to severe depression, partial inappetence, infrequent rumination, and moderate increase in rate of respiration and heart beat.

Cattle, and possibly other animals, may acquire infection through bites by infected ticks, but other means of spread from animal to animal are likely. Calves can be infected by the feeding of infectious milk. Milk samples of experimentally infected animals have remained infectious as long as 200 days.

Four states in the present survey reported positive diagnoses of Q fever, and it has been recognized serologically in cattle and sheep in certain areas of California.

7) *Virus dysentery*, a new transmissible gastroenteritis of cattle occurring in New York state, was described by Olafson and coworkers in 1946. The first indications of infection in a herd are inappetence, depression, and scouring of one or more animals. Others in the herd, apparently normal, may have temperatures of 105 F. to 108 F. After a day or two of scouring, those severely affected develop ulcers in the mouth, nose, and on the muzzle. Salivation may be present. Ulceration or necrosis of the pharynx, larynx, and esophagus may be found on postmortem. The ulcers in the esophagus are shallow and tend to have a "punched-out" appearance. Some may coalesce to form long ulcers. The stomach and intestinal lesions are diffuse reddening of the mucosa and a few ulcers and small hemorrhages.

Some cases are so mild that no symptoms are detected yet may serve to infect the remainder of the herd. If pregnant, some animals abort ten days to three months later. Mortality was about 8 per cent in the New York outbreaks with 33 to 88 per cent of the animals in infected herds showing clinical symptoms.

The present survey shows that ten states have diagnosed virus dysentery, and an additional six states suspect its presence.

8) *Ictero-anemia* ("Anaplasmosis-like" disease of swine). In 1932, Doyle described an ictero-anemia of a sporadic nature in swine in Indiana. The disease ran a rapid course, lasting from one to five days. The postmortem findings were considered pathognomonic. Icterus was the striking feature, and the spleen was greatly enlarged and softened. The blood was very pale. Blood smears revealed erythrocyte inclusions resembling Anaplasma or rickettsial bodies, but may represent a degenerative process within the cell. The condition was seen in pigs 2 to 8 months old. Morbidity did not exceed 10 per cent. In 1938, Quin again called attention to the disease. Information is not available as to the specific cause of the disease. Those encountering ictero-anemia in recent years doubt that the condition is infectious. One reporter has noted a relation of ictero-anemia occurring in late summer or fall to severe attacks of nutritional anemia in the herd during the first few weeks of life.

Ten states reported occurrences of this condition, four of which encountered it in 1948.

S/G. S. HARSHFIELD, *Chairman*
C. R. DONHAM — S. H. MCNUTT
E. M. JONESCHILD — W. S. SHAW

Diseases of Small Animals

Realizing that agents now available for the treatment of distemper and associated infectious diseases are inadequate, President L. M. Hurt asked this committee to spend the year stimulating research in this connection.

Complying with this request, the committee has considered this problem and, to reach a solution, two major obstacles must be overcome.

First, a liberal fund must be available to finance canine research. A peculiar situation arises when tax-supported institutions wish to conduct canine research. State schools and institutions are largely financed with funds appropriated for agricultural purposes and, for this reason, research directors are hesitant to use agricultural dollars for canine disease study.

Second, the AVMA Research Council has had

difficulty in locating qualified personnel to conduct research.

Most of the veterinary schools and research institutions have the equipment and are willing to participate in these studies, if personnel and funds were available. Indications show that certain commercial interests, canine fancier groups, as well as veterinarians themselves, would be willing to donate to such a fund if a well-formulated plan were presented.

The need for additional information regarding the treatment and control of canine disease continues to be a serious problem. The committee, therefore, recommends that further steps be taken to assure a sound organization for canine research. To further stimulate interest in this problem, the committee is preparing a review of the literature, summarizing present-day information on distemper and its allied complications. This paper will be presented at the Detroit meeting of the AVMA.

S/WAYNE H. RISER, *Chairman*
C. E. DECAMP LLOYD C. MOSS
M. A. NORTHRUP

Motion Picture Library

During the past year, two new films, "Cataract Surgery in the Dog" and "Valiant Years," were added to the AVMA film library. The library now has 21 sound and silent films and plans to add several more in the near future.

Films from the library were shown 54 times from April 1, 1948, to March 1, 1949. The number of requests increases as the library acquires more new and interesting films.

The Committee on Motion Picture Library wishes to make the following recommendations:

1) That the motion picture library be continued, and that funds be kept available for procurement of new films.

2) That the Special Committee on Motion Picture Library be discontinued and that the work of this committee be handled entirely by the office staff of the AVMA.

S/C. B. KRONE, *Chairman*
A. G. DANKS W. J. GIBBONS
J. M. DINSMORE I. M. HUTCHINGS
C. C. MORRILL

Veterinary Service

The committee found it difficult to carry out the suggestions presented last year as possible programs. The several peculiar conditions now existing in the field of veterinary medicine, plus the fact that some things suggested are being carried on by other committees with definite responsibilities, accounts for this.

The committee has made rough drafts of an illustrated booklet which might be sent to all veterinarians and perhaps to leading livestock producers. The committee on public relations, the AVMA staff, and others have assisted generously. The printing and distribution of this booklet will depend upon the action taken by the Executive Board. The booklet is designed to emphasize the value of veterinary medicine and, more particularly, the contributions of the veterinarian to his community. In short, to convince us of our responsibilities and potentialities and to impress the public in general as to what we, as a profession, contribute beyond the field of veterinary medicine. Many leading veterinarians feel that, with this approach, we will do a great deal to strengthen our position and in so doing will be better able to show our clients and future clients the fallacy of wasting money by promiscuously purchasing and using medicines and biological products. Millions of dollars are spent uselessly every year in this way by farmers. Even good products do not help the economy of the livestock farmer when used indiscriminately, inadvisedly, and without proper knowledge of their true value and limitations. Table 1 gives some idea of the great amount of drugs sold to the laity. Many are used needlessly, and some are valueless when finally given to the animal.

Considering the large variety of biological products produced, it is a fair assumption that the amount purchased directly by the farmers is equal to, and probably considerably in excess of, that used by or upon the advice of a veterinarian. Vaccination alone and the use of improperly stored and out-dated biological products lead to a feeling of false security and often the neglect of serious costly sequelae. There is no reasonable way to learn how much the farmers spend needlessly on veterinary medicines, tonics, etc.

At the meeting of the House of Representatives last year, item No. 5, "Professional Relationships," was discussed. This was reported by the committee as a possible project for future activity. It should be pointed out that during the past year we have learned of considerable improvement in this particular problem in veterinary medicine. Since this is principally a matter of personnel and since conditions seem to be improving, it would appear that no active program should be started on this problem at present. Regional meetings held under the sponsorship of the U. S. Bureau of Animal Industry and the U. S. Agricultural Extension Service and attended by representatives of the state veterinary medical associations, the AVMA, the BAI, the Public Health Service, Agricultural Extension Service, Agricultural Experiment Stations, and breed and farm organizations are having a most beneficial influence.

The presidential address of Dr. R. J. Beamer to the Mid-West Small Animal Association in November, 1948, as originally printed in the *Bio-Chemic Review* (winter ed., Vol. *19*, No. 3, 1949) is reprinted here as a part of the report of this committee. This talk is most stimulating and should make all of us take stock of ourselves, and the committee feels that AVMA members who have not seen this article should be given the opportunity to read it.

Some Needs of the Profession

"Nobody will question that the veterinary practitioner occupies an important place in his respective community. Veterinarians, through their understanding of transmissible diseases, have an important part in public health work and their activities in this program are generally appreciated. The contribution made by the small animal practitioners to the peace of mind and well being of the general public cannot be sold short.

The activities which make the general practitioner most valuable in the community are the care of herds, droves, flocks, and pets, the treatment of sick animals and the protection of susceptible ones. The value of

animal disease control, from the standpoint of national economy, cannot be measured in dollars and cents. It may be appreciated only by considering that the destiny of our entire human population rests upon the products of our livestock industry, and the success of this industry depends directly upon animal disease control.

While the practical application of veterinary medicine is a scientific profession, it is also a business, and the successful practitioner must have adequate business ability to cope with situations as they arise. In the dual role of professional man and business man, he must be ready to evaluate treatment under all conceivable conditions, sell his client on the economy of it, administer it according to his best judgment and then be able to show results which will net the owner a profit on the money invested for service. The business-like veterinarian does not fail to consider his own welfare while planning for his clients' profits.

When a young graduate starts out on a career as a practitioner, the road ahead provides for two choices of accomplishment. Whether he realizes it or not, his inclinations favor either a professional or a business practice. In the first place, he will strive above all else to be a good practitioner, and professional satisfaction can only be achieved by contributing to the growth and development of his profession. This is possible through an attitude of research and by critical and careful observations of results obtained from present methods. In a practice conducted on this plane, remuneration will be forthcoming from satisfactory service rendered. The professional man has the reputation of being a poor business man. He is usually more capable of creating capital than of conserving it. Because this fact is recognized rather generally in professional circles, and examples can be cited of men who are highly capable professionally, but make a failure of the business part of their careers, the inclusion of a course in business and economics in the professional curriculum is often discussed.

TABLE I—Production of Biological Products

Products	Liters produced in U.S.	Percentages produced by companies selling to laymen
Brucella abortus vaccine	23,965	34.38
Blackleg bacterin	51,866	33.01
Mixed bacterin (bovine)	28,688	39.72
Hog-cholera antiserum	1,193,383	27.15
Hemorrhagic septicemia serum	24,742	36.83
Hemorrhagic septicemia bacterin	31,758	64.04
Mixed bacterin (porcine)	12,966	50.10

Raise Professional Standards.—Another problem which constantly confronts our profession, and which is not in direct relationship to the control of animal disease and public health, is to strengthen the organization within our profession as a whole. To raise the standard of our profession to a higher level of professionalism, and thus eliminate the quacks and charlatans that have for many years, and are still trying to infringe upon our profession. Any person that has spent time enough in training to rightfully carry the title of Doctor before his name, should honor both the privilege and the profession to which he belongs, to the utmost degree. One of the most important considerations in maintaining the high standing of any profession is the establishment and observance of certain ethical principles. We of the veterinary profession should try much harder to appreciate our fine code of ethics and use it more as a guide in our professional life.

I think it would do us all good to review the Veterinarians' Creed as written by Dr. R. R. Dykstra.

The veterinary profession would function far more smoothly if there were a greater coöperative feeling, even a feeling of sincere interdependence among its practitioners. There should be a minimum of competition among the members of any branch of medicine. In fact, we should consult each other when in doubt or when difficult cases come to our attention. I know this is hard to do, when one is being constantly stabbed in the back by his unethical colleagues, but it is necessary for the good of the profession that these men be won over, in order to keep on raising the standard of our profession. Consultation should not deprive any veterinarian of his personal respect. Rather, he should be more respected for having made an attempt to offer better professional service. We should all feel that it is inadvisable for a veterinarian to render his abilities under conditions that prevent adequate service. To do so is detrimental to himself, his practice, and his profession.

Hippocrates said concerning a physician's deportment, "He should also be modest, sober, patient, prompt to do his whole duty without anxiety; pious without going so far as superstition, conducting himself with propriety in his profession and in all the actions of his life." Surely we, as veterianarians, also should appreciate the challenge in these words. Anyone can recognize, but not everyone can face, a challenge. It is the privilege and duty of a veterinarian to uphold the character and dignity of his profession so that it reflects favorably on his entire community. It is good business and the duty of every veterianarian to take some active interest in civic movements and give these organizations help by means of his professional and business ability. Taking part in civic affairs and, if necessary, holding offices in the various organizations in a community certainly reacts to the advantage of every individual practicing such efforts. The profession as a whole, both through the individual and through the collective efforts of many, can gain prestige that way.

Course in Public Relations.—It might enhance the prestige of our profession if there was a closer association with our veterinary schools. Most of our instructors are tops in their field, but at the same time they do not have space in their courses for such things as ethics, the practical side of veterinary medicine, or the business side of our profession. Maybe they should add a course in public relations to the curriculum. In other words, prepare the young graduate, when he leaves school, with something more than just a knowledge of the scientific aspects of veterinary medicine. Because in the years to follow, it is these same young graduates that will carry on their shoulders the load of the profession. The young man that goes into practice is by no means

the only cog, or the main cog in the wheel of our profession. Our scientists, our research men, and the men connected with our biological and pharmaceutical supply houses play just as important a part in the wheel of veterinary medicine. In order to raise the standard of our profession to the level to which it belongs, it is necessary that all its branches work together in complete harmony.

No chain is stronger than its weakest link. The Midwest Small Animal Association is a link in the chain of Veterinary Medicine. The progress made during eleven years of existence has proven it to be a very strong link in that chain. Let us all keep on working together as in the past, to make our association a stronger and better organization. Let us be proud of our achievements and a credit to the professions."—*R. J. Beamer, D. V. M.*

Dr. John Herrick, of the Artificial Breeding Center at Iowa State College, prepared for this committee an article which will be published in the JOURNAL. This article points out the extent of the artificial insemination program in the United States and forcibly shows us that only a few veterinarians are participating in this work.

Two interesting observations in Dr. Herrick's report are (1) that 33 states indicated the major problems in the field of artificial insemination were reproductive disorders in the female; and (2) that analysis of the charts show that only eight organizations have veterinarians employed and only nine indicate veterinary medicine as the training most essential for research in this broad field. Certainly, these two observations do not coincide. In the past, we allowed this work to go unheeded; now that others are beginning to realize that the veterinarian has a very definite place in the program, we must accept our responsibility. The veterinarian must be an integral part of this program.

Last year, this committee polled the various states to determine the extent of diagnostic laboratory facilities. That report indicated that 34 states had laboratory facilities; some were regarded adequate in plant, personnel, and equipment, while there was room for improvement in others. This past year we contacted the states which were deficient a year ago. Replies received, at the time this report was filed, indicated that four additional states have established what they consider to be adequate facilities. Two others report that they have the physical facilities for a laboratory, but have not been able to secure personnel.

During 1947-1948, we checked to see which states had some type of annual renewal of registration for licensed veterinarians. Twenty-eight states reported that they require annual registration. During this past year, a follow-up check was made on states that had no such procedure, according to their 1948 report. At the time this committee report was filed, only one state, of those which had answered, indicated that annual registration had been instituted. One other (Hawaii) reported having a bill before the legislature.

The assignments of this committee naturally cut across all phases of veterinary medicine. With this in mind, we recommend the continuation of this committee and that in making appointments, consideration be given to selecting representatives from the practitioners, educational institutions, U. S. Bureau of Animal Industry, state regulatory agencies, and public health. It is further recommended that at least two members be reappointed from the previous year. This seems advisable so that the work of this committee will be continuous rather than for a limited or specified time.

s/W. T. OGLESBY, *Chairman*
COL. SETH DILDINE — CHARLES REID
H. L. FOUST — ELMER WOELFFER

National Board of Veterinary Examiners

Our committee report is brief. We have informed all organizations and groups who are to be represented on the National Board of Examiners to have their selections made by the time of the AVMA meeting in Detroit. This is proceeding satisfactorily and, as soon as all selections have been made, a meeting for the purpose of incorporation and organization will be held.

s/W. R. KRILL, *Chairman*
C. W. BOWER — R. R. DYKSTRA
W. L. BOYD — R. A. KELSER
I. D. WILSON

Code of Ethics

The main objective of this committee during the past year has been to have the component organizations which are affiliated with the AVMA appoint or elect a committee on ethics to represent them in an over-all plan to enforce ethics among our members. We have been able to get associations to coöperate to the extent of sending in the names of their committee members. The names of the chairman of these committees were published in the March, 1949, JOURNAL, p. 174. It is our intention to continue this activity until we have completed this phase of our campaign.

Arrangements have been made and invitations extended to all state chairmen to meet with the Special Committee on Ethics at the Detroit convention with the view of coördinating our efforts to curb unethical practices.

The work has not progressed rapidly. In fact, when this committee was appointed, it knew that it would take time to lay a foundation upon which good results could be accomplished. After five years, we believe that the foundation is strong enough to support some weight. The weight is useless unless it has the official sanction of the builder which, in this case, is the American Veterinary Medical Association.

We have asked in our previous reports that an official notice be published in the JOURNAL, over the signature of the governing body, to the effect that all members of the AVMA look to their professional advertising in their telephone directories and, if this advertising does not meet with the requirements as set forth in the Code of Ethics, that they change it by the time their next directory goes to press or else be liable to charges of such unethical practice. This notice has never been published because our executive officers have felt that we were not ready for it. Your committee believes that with the active coöperation of the ethics committees of the various state associations, an official notice from the AVMA would lend impetus to this undertaking.

We all know that there are violations of our Code by members of both high and low degree. This should not deter us from correcting this condition; it will in no wise cause a hardship for a single member, be he well known or unknown.

The committee has outlined its working plan in previous reports. We suggest that the various state committees refer to these reports for their course of action if they wish. The reports will be found on page 440 of the November, 1946, issue of the JOURNAL; page 445 of the November, 1947, issue; and page 528 of the November, 1948, issue.

We have mentioned before that the Special Committee on Ethics could not possibly act as a "policeman" for all 48 state associations and the other affiliated societies. The AVMA adminstrative By-Laws (Article X, Sec. 3, subparagraph "e") provide a definite method for dealing with specific violations of the adopted code. This committee has no authority or power of enforcement under the By-Laws, its activity being largely educational for the purpose of promoting interest in, and greater observance of, our professional morals by every resonable means at our disposal. To this end, the committee bespeaks the earnest and active attention of all affiliated associations, their ethics committees, and their members. If standards of professional conduct are to be improved, work must be done beginning at the local level and using the measures provided in the AVMA Code and the codes of its constituent associations.

Look at a classified telephone directory from one of the large cities in almost any state, and you will see the great amount of work that the state committees have to do. The small animal practitioners, especially those with hospitals, have a great deal of unprofessional advertising to correct. The large animal practitioners fall in for their share of criticism, also. We are, and should be, ashamed of this unprofessional conduct. It is our duty to correct it, and we should make every effort to do so. The committee stands ready to help, to the best of its ability, any state committee on ethics which requests our services or any individual who wishes to help, constructively, in this "crusade." We do not wish to be brought into every personal violation and argument on this subject. We trust that the state committees will be able to correct most, if not all, of the violations which occur within their territory. This is certainly the best solution wherever possible and would eliminate the need for preferring formal charges to the AVMA in many instances.

It is recommended that this committee be continued and that it be made a standing committee beginning with 1950, which will be the fifth year from its original founding.

s/S. W. HAIGLER, *Chairman*
R. A. MERRILL — D. R. SKILLEN
F. L. SCHNEIDER — R. C. SNYDER

Joint Committee on Foods—AVMA and AAHA

No stated meeting of the committee has been held since the last annual report, its business having been transacted largely by correspondence. The official audit of the records of the committee treasurer, Dr. A. R. Theobald, who is also treasurer of the AAHA, showed a cash balance as of June 28, 1948, of $4,417.38, with all bills paid.

During the past year, the Seal of Approval of the Joint Committee was granted to Hill's Dog Food, manufactured by the Hill Packing Co., Topeka, Kan., as a maintenance ration. Approval was based on satisfactory compliance with the chemical tests and biologic assays (protein evaluation test and dog-feeding tests) as required in the committee standards for approved foods. These are contained in the committee's printed pamphlet, "The Testing of Dog Foods for the Seal of Approval." Copies of this pamphlet as revised and approved in 1946 by the coöperating associations are available to veterinarians and other interested persons by writing to the Joint Committee on Foods, c/o AVMA office, 600 S. Michigan Ave., Chicago 5, Ill.

The test data on Hill's Dog Food were subjected to critical analysis by Dr. M. Wight Taylor, Department of Biochemistry, Rutgers University, who serves as technical consultant for the committee. At the present time, this food is the only commercial dog food on the market which has the Seal of Approval of this committee.

Since the last report, Dr. C. W. Bower, Topeka, Kan., has replaced Dr. S. W. Haigler, St. Louis, Mo., whose term expired in 1948.

Although the actual test and approval program of the committee has not been particularly active in recent years, the committee continues to receive a number of inquiries every year from veterinarians, government agencies, and dog food manufacturers regarding quality control and nutritional tests on such foods. Hence, the committee recommends that it be continued for the purpose of (1) conducting tests on any commercial dog food the manufacturer of which desires to apply and qualify for the Seal of Approval (whose standards are admittedly high), and (2) to serve in an advisory capacity to the coöperating associations on questions it can properly handle.

USDA Certification.—The report of the chief of the Bureau of Animal Industry, U. S. Department of Agriculture, for the year ended June 30, 1948, states that 25 approved packing plants located in 19 cities were under supervision with respect to certification of canned animal foods (dog foods). The total production of these plants was 277,861,352 lb. of certified product, the standards for which were summarized in and commented upon in the 1947 report of this committee (*see* the JOURNAL, November, 1947, pp. 445-447).

s/L. A. CORWIN, *Chairman*
C. W. BOWER — J. G. HARDENBERGH
J. B. ENGLE — A. E. WIGHT

Subcommittee on Veterinary Items, National Formulary Committee

The committee has been relatively inactive during the current year. The eighth edition, representing the seventh revision of the National Formulary, became official on April 1, 1947. Until recent years, the revision of the National Formulary corresponded to the revision, each decade, of the United States Pharmacopoeia.

The National Formulary revision, now a rather

continuous process, begins very soon after the issuing of a new volume. However, there has been no activity as yet concerning the eighth National Formulary revision requiring the services of this subcommittee.

s/H. D. BERGMAN, *Chairman*
R. F. BOURNE P. W. BURNS
C. F. CAIRY

Humane Act Award

This committee has hardly had enough time to function properly and the chairman has not heard from committee members other than Dr. W. A. Young who has helped considerably in matters pertaining to the Humane Act Award. Therefore, my report will be brief, covering only the chairman's activities on behalf of the award.

To date, the committee has coummunicated with the following: all deans of veterinary colleges; all veterinary and biological publications; all local (San Francisco) newspapers; and AVMA Public Relations Counsel, L. R. Fairall.

In communications with veterinarians, it was stressed that the committee would be especially pleased to receive nominations from members of the profession. In the past, the committee has received most nominations from outside sources.

The chairman lost no opportunity in California, with the coöperation of the San Francisco SPCA, to familiarize the public in the remotest corners of the state, rural, and metropolitan areas, with the Humane Act Award. All of the major humane societies and SPCA's in California, as well as several of the largest in other parts of the country, were notified by letter, and an article was published in the San Francisco SPCA magazine, *Our Animals*.

The other members of the committee were urged to take similar action.

As this is being written, few applications have been received, although there is still one month before the close of nominations. To remedy this situation for future committees, the chairman would recommend that the committee for next year be notified of its appointment earlier and that the chairman be furnished at that time with the necessary information and materials such as AVMA letterheads and, perhaps, announcement posters for purposes of publicity.

s/S. T. MICHAEL, *Chairman*
A. E. CAMERON G. W. MATHER
W. A. YOUNG

Research Council

The Fellowship Committee met in Chicago on May 5, 1948. The purpose of the meeting was to consider the applications for new fellowships and the extension of grants already initiated.

The new fellowships granted were:

Dr. A. W. Monlux, who is concentrating on the pathologic anatomy of the kidney, at the Army Institute of Pathology and at George Washington University.

Dr. W. S. Bailey, who is studying the host-parasite relationships of *Hymenolepsis nana* var. *fraterna*, at Johns Hopkins University.

Dr. L. E. Johnson, who is studying surgical pathology, at Mayo Foundation in the Division of Experimental Medicine.

Dr. C. J. York, who is conducting research on virus infections of domestic animals, at the New York State Veterinary College at Cornell University.

Dr. R. F. Borgman, who is investigating the function of the thyroid gland in the dog, at Michigan State College.

Fellowship extensions granted (*see* JOURNAL as noted) were:

Dr. Howard W. Dunne (Aug., 1948: 187)
Dr. M. J. Swenson (Sept., 1948: 291)
Dr. E. V. Morse (Oct., 1948: 371)
Dr. J. H. Drudge (Dec., 1948: 607)
Dr. D. A. Schmidt (Feb., 1949: 102)

RESEARCH COUNCIL MEETING

The Research Council met in Chicago on Nov. 30, 1948. The status of the old and new fellowships was reviewed. The withdrawal of H. W. Dunne was accepted. A subcommittee of the Fellowship Committee was appointed to study the question of exchange and international fellowships. Discussion of accepting specifically designated funds led to the recommendation that the council have a representative to work with the Research Fund Committee in regard to accepting money for the Research Fund.

The officers of the Council were reëlected, and the members of the fellowship committee (J. F. Bullard, M. A. Emmerson, R. A. Kelser, A. L. MacNabb, L. M. Roderick, L. E. St. Clair, and C. F. Schlotthauer) were reappointed for another year.

NEED FOR PERPETUAL FUNDS

The AVMA fellowships have stimulated more interest among young veterinarians to take advanced work and do research than any other similar agency. This is undoubtedly due to the high caliber of the fellowships. This past year, the Research Fund has been considerably depleted, and there now is no official AVMA Research Fund Committee as the original committee was discharged at the 1947 AVMA meeting in Cincinnati. The Research Council is limited in its consideration of applications for initiating and renewing fellowships because it is not possible to anticipate just which fellows will request financial aid to complete their research in progress.

The fruits of the research sponsored by the AVMA are being realized. The Research Council has experienced the normal "growing pains" and is now functioning smoothly. It is spoken of with pride by the whole profession. It has given an unusual degree of confidence to the prospective graduates in veterinary medicine who are looking forward to advanced training for the betterment of the profession.

It is, therefore, recommended that the Executive Board and the House of Representatives authorize the appointment of a standing AVMA Research Fund Committee to provide an annual income to perpetuate and expand the research and graduate training in veterinary medicine thus far so nobly begun and so well received. The veterinary medical profession of Great Britain has established a similar program to stimulate research and advanced training by and for their younger veterinarians.

INCREASING THE SCOPE OF THE RESEARCH COUNCIL

Reasonably, the scope of the work accomplished by the Research Council is limited by the funds available and the limitations placed upon it in

performing its duties. It is, therefore, recommended that the scope of the duties of the Research Council be expanded to include:

1) Emphasizing, to the students in our veterinary medical schools, the need for properly qualified veterinarians to do research work in specific fields and on specific problems.

2) Appointing a member of the Council to the Research Fund Committee to advise them on the acceptance of funds specifically designated for a given problem and perhaps to be conducted at a selected institution. Such specifically designated funds could usually be accepted and would be valuable to all parties concerned.

3) Stimulating interest in graduate training by having members of the Council speak to the AVMA student chapters. This can be accomplished with a minimum of expense to the AVMA by having Council members notify the AVMA office of their traveling itineraries far enough in advance so that arrangements can be made with the chapters to have Council members appear on their program. AVMA student chapters have expressed the opinion that they have received little help from the AVMA. This suggestion of having Council members speak before the student chapters will serve two purposes. It will promote a better relationship between student chapters and the AVMA, because the scheduling could be done through the Chicago office and the chapters would feel they were receiving more assistance from the parent organization; and second, Research Council members could use part of their speaking time to outline the Council's activities. The results achieved by fellows in the past, as well as information of existing fellowships at certain institutions for which graduates could apply, could be outlined.

The council has also functioned, as in the past, as the Board of Review and passed upon the manuscripts submitted for publication in the *American Journal of Veterinary Research*.

s/L. E. ST. CLAIR

Advisory Committee on Diseases of Zoological Park Animals

The committee is reviewing the literature on psittacosis and yellow fever. The regulations regarding the importation and interstate movement of certain wild animals are being studied. It is recommended that the committee be continued for the completion of this work.

s/LEONARD J. GOSS, *Chairman*

I. E. ALTMAN — C. R. SCHROEDER
S. O. FLADNESS — JAMES H. STEELE

Brucellosis Program Committee

The Committee met at the AVMA office in Chicago on Jan. 31, 1949. The report of this meeting (*see* JOURNAL, April, 1949, pp. 261-262) is essentially the report of this Committee's activity.

Two recommendations should be added:

1) That this Committee of practitioners be continued, but that the duties be widened to include formulation of recommendations for animal disease-eradication programs which will encourage maximum participation of practitioners. To this end, the Committee should have members from widely separated geographic areas, and who are engaged in various fields of veterinary medical practice.

2) That the AVMA endorse the brucellosis-eradication program adopted by the United States Livestock Sanitary Association in 1947. This program consists of four plans: (a) Test and slaughter, with or without calf vaccination; (b) test, calf vaccination, and temporary retention of reactors; (c) calf vaccination without test of any part of the herd; and (d) adult vaccination.

s/W. WISNICKY, *Chairman*

A. E. ERICKSON — T. L. STEENERSON
C. C. FRANKS — R. J. TOBOLA
A. M. ORUM — O. NORLING-CHRISTENSEN

Representatives

Representative to the Horse Association of America

The meeting of the Horse Association of America, Inc., was held at the Palmer House, Chicago, Ill., Dec. 1, 1948. This association was originally called the Horse Association of America, but in 1936 it was changed to the Horse and Mule Association of America. The mule has now been dropped from the name and it has been changed back to the Horse Association of America. The individual dues have been changed from $10 to $25.

The association felt that with the decreasing draft horse and mule business, they could not expect much support from this section, which prompted their change. It appears that they may have made the change a little too soon.

At the annual sale of the Indiana Draft Horse Breeder's Association at the Indiana State Fair grounds on March 19, 1949, 3 Belgian mares brought $1,570, and a Belgian gelding sold for $350.

For the past year, emphasis of the association has been on pleasure horses, race horses, and riding horses. It was believed that this was the only field in which something could be accomplished. Interest in racing has increased as new tracks were opened and the trotters and pacers have gained in popularity. There are about 850,000 saddle horses in the country now of which approximately a half million in the Western states are used primarily for work purposes. Wherever there are safe riding trails, horses are being ridden. Within the greater Chicago area, there are many saddle horses used, especially in the summer. There are many stables adjoining the Chicago parks and in the Cook County Forest Preserve, and thousands of people are riding. The riding license is 50 cents for three years in that area. This serves as a check to determine the number of riders in the area. If the rider strays from the regular trails and rides into picnic grounds and other forbidden places, an officer will take the rider's license.

Interest in the light horse has developed rapidly. Saddle clubs are being formed in most of the rural areas throughout the country, promoting good fellowship and healthful exercise.

As long as we have the Kentucky Derby and our great racing interests at the famous tracks throughout this country, we will never be without the horse.

s/T. A. SIGLER

Representative to Association of Honorary Consultants, Army Medical Library

The annual meeting of the Association of Honorary Consultants to the Army Medical Library was held in Washington, D. C., Oct. 22, 1948, President Chauncey D. Leake, presiding. Committee meetings had been held the previous day, and the reports of these were presented at the first session and dealt with acquisitions, building, historical medicine, and grants and endowments. A series of papers was presented on such subjects as bibliographic control of scientific literature, indexing, research, classification, and medical literature in Japan. At the evening session, Brig. Gen. George E. Armstrong, Deputy Surgeon General of the Army, and Dr. John W. Fulton, professor of physiology at Yale University and former president of the Association, delivered addresses. A première of the motion picture, "The Mayo Clinic Library—An Introduction to Its Use," was also shown.

The work of the Army Medical Library is progressing steadily, although it is still handicapped by lack of a suitable building, and an inadequate staff, the need for which has been before Congress for some time. Favorable consideration is hoped for, eventually. Policies concerning the relationship of the Library of Congress and the Army Medical Library are also being studied.

The attention of veterinarians, particularly those in teaching and research, is again invited to the facilities and services available at the Army Medical Library, which will undoubtedly become the outstanding medical library of the world.

s/J. G. HARDENBERGH

Representative to the American Association for the Advancement of Science

One of the most important meetings of the year was that of the American Association for the Advancement of Science held in Washington, D. C., Sept. 17, 1948. This was in celebration of its one-hundredth anniversary.

Contributions to general sessions and seminars were very well selected and extremely ably prepared and presented. Practically all persons appearing upon, or listed to discuss, the program are *names* in science today. They are intimately connected with the outstanding discoveries which have influenced events, both in war and peace, during the last half of the century. The first meeting, held the evening of September 13, was the only one that could be classed as a social session. Following the president's address, a reception was held by the officers of the association for the members and guests attending the convention.

Mornings and evenings were completely filled with concurrent symposiums in five different buildings, in Washington, having assembly rooms large enough to accommodate those in attendance. During the afternoons, the members were taken on tours to institutions of great interest, including the National Institute of Health, Army Medical Center, National Bureau of Standards, Carnegie Institute, Naval Research Laboratory, Agricultural Research Station, *et al.*

My interest in the program material led me to sessions and papers under classification of World's Natural Resources, Control of Human Population, World Health Problems, and Food and Nutrition. Apparently no effort had been made by the program committee to direct the theme either of the convention or of the several sections. However, after attending as many of the numbers in the above divisions as I could cover, it seemed that there had been a definite undercurrent of study directed toward the rapidly increasing world population and the definitely static or decreasing production of foods. These have already reached critical stages in many countries and there are none remaining, including our own United States, which can view with complacency the problems which attend over-population and the known deficiencies which result from undernourishment.

In conferences with some outstanding contributors to the splendid program, including Drs. A. J. Carlson and W. A. Albrecht, I found that this was the impression they had gained. They considered it fortunate that this important matter had received so much consideration, and were of the opinion that the somewhat scattered references in the several section programs might leave deep and lasting impressions in the minds of more of the members than would have followed a special seminar on the subject

There were 2,734 scientists registered for the meeting. The United States and 18 foreign countries were represented. The field from which there came the largest registration, 508, was the medical sciences.

s/L. M. HURT

Representative to the National Livestock Loss Prevention Board

The annual meeting of the National Livestock Loss Prevention Board was held at Chicago, Ill., on February 14 and 15, 1949. The tremendous marketing losses, largely preventable, were brought out. Figured in dollars and cents the amounts are almost unbelievable. Figured in pounds of meat and prorated among the people of the United States, one can easily see that every person is unnecessarily deprived of several good meals of meat each year.

When one realizes that the annual loss due to grubs exceeds $100 million, and the loss due to bruises exceeds $50 million, it is easy to see that these losses cost every person in the United States more than $1.00 each year. Railroad companies, truckers, stockyard companies, and packers are cognizant of these tremendous losses which the producer pays and are making every effort to curtail them.

All veterinarians in the field could assist in loss prevention work by suggesting changes that would eliminate the causes of these losses on the farms and ranches. Time spent by veterinarians pointing out the loss from internal and external parasites would be well spent. The eradication of these parasites will profit both the veterinarian and his client.

Other points that would be reflected greatly in good will would be to point out the losses sustained by rough handling, jamming into gates, clubbing, kicking, whipping, and over-crowding. The veterinarian could easily point out the danger spots in buildings, chutes, pens, trucks, etc. Projections, splintered boards, broken and slippery floors, protruding nails, bolts, sharp corners, etc., can be eliminated with little effort and expense and would save a lot of meat.

The producer will appreciate and listen to suggestions on loss prevention from his veterinarian. The entire livestock industry, which the veterinarian serves, will profit at the same time.

s/W. E. LOGAN

Representative to The Inter-Association Council on Animal Disease and Production

The Council has held no meeting during the past year, but correspondence between members has resulted in agreement that emphasis should be placed on statistics relating to the morbidity and mortality among domestic animals.

Several projects dealing with different phases of the problem have been completed or are under way. The National Research Council has, through the statistical laboratory at Iowa State College, completed an experimental study of animal disease losses in a typical Iowa community. The AVMA Committee on Nomenclature is preparing a manual which will help all veterinarians in classifying animal diseases uniformly. The U. S. Livestock Sanitary Association has a committee working on a manual on standard methods of diagnosis.

Plans have been suggested for integrating the work already accomplished and that which is under way, and of using the information gained from these studies in enlarging the scope of activity.

A Council meeting for full-scale discussion and formulation of a plan of action has been proposed.

s/R. C. KLUSSENDORF

Representative to the Division of Biology and Agriculture in the National Research Council

The Association's representative to the Division of Biology and Agriculture in the National Research Council of the National Academy of Sciences has attended one meeting since the last report was made May 14, 1948. This was on Sept. 13, 1948, in the National Research Council building, Washington, D. C., and was the second meeting of the Governing Board of the newly organized American Institute of Biological Sciences.

Since the AVMA has not established membership with the AIBS, attendance at this meeting was in the capacity of a nonvoting observer. Briefly, this meeting dealt with new memberships to the Society and sponsorship by the AIBS of joint meetings by 11 biologic societies in conjunction with the AAAS meeting held in Washington, Sept. 10-13, 1948. The consensus of those representing 21 biologic societies was that this arrangement was a success and the hope was expressed that the AIBS would continue to make arrangements for future meetings.

It was reported that a contract for the preparation and publication of a "Handbook of Biology and Medical Data" which had been previously approved by the National Research Council's Executive Board was now in the process of negotiation between the Air Materiél Command, Aero Medical Laboratory, U.S. Air Force and National Academy of Sciences—National Research Council, to be under the Division of Biology and Agriculture and the AIBS. The handbook will contain authentic, accepted, and frequently used constants, data, normal values, tolerances, and standards applying to the quantitative aspects of biology in its broad and basic sense, including many fields of applied biology.

A committee on publication is studying the possibility of securing printing contracts for a group of six or more societies, with uniformity of paper and some standardization of type and format. A central office for handling the routine editorial work of preparation of papers for publication, and also to handle the business affairs of journals, is being considered. Letters explaining these objectives and requesting reactions to the project were to be sent to the editors of a number of biologic society journals.

A committee on selective service, headed by Dr. Leland W. Parr, is working in close coöperation with the NRC Office of Scientific Personnel. This committee is studying the questions of importance relating to the draft status of students in the biologic sciences and the proper utilization of scientific personnel in the armed forces.

In your representative's last report, mention was made that the NRC deemed it desirable to have each representative place before his society, the activities of the NRC which particularly affect members of his society. This appeared as a guest editorial in the November, JOURNAL, *103*, (1948): 479-481.

s/E. P. JOHNSON

Representative to the Division of Medical Sciences National Research Council

The annual meeting of the Division of Medical Sciences of the National Research Council was held on April 30, 1949, in the headquarters of the National Academy of Sciences, Research Council Building, in Washington, D. C. The AVMA representative was present and attended all sessions of the meeting. The National Research Council was established in 1916 by the National Academy of Sciences under its Congressional Charter and organized with the coöperation of the National Scientific and Technical Societies of the United States.

There are over 40 members of the Division of Medical Sciences, each representing a national society, association, or institution whose professional interests and relationships lie in fields of the medical sciences. There are six representatives of the government designated by the President of the United States who represent the U. S. Public Health Service, the Departments of the Army, Navy, and Air Force and the Office of The Surgeon General. The tremendous research program of the division is carried out under the direction of the many committees, sections, and boards in the fields of biologic and medical research which recommend allocation of available funds to individuals in research institutions and organizations qualified to conduct such research.

Aside from the routine business pertaining to administrative matters, the agenda was made up almost

entirely of reviews by some 20 committee chairmen of their reports prepared and filed in advance and which are available to all those in attendance. These reports, which included a listing of the personnel engaged in the particular research, were truly indicative of the tremendous amount of vital research work being conducted in the medical sciences and related fields.

Among the items of the agenda was one pertaining to the relationship of the Division to its constituent societies. This evoked considerable discussion, by representatives of these societies, which was largely to the effect that a closer relationship, involving a more complete definition of the duties and responsibilities of the society representative, is highly desirable. It was the opinion that some plan whereby the constituent societies could be kept better informed as to special research needs and funds available for such research is needed and that this would create greater interest and contribute in an important way to the activities of the Division. It is the opinion of the AVMA representative that veterinary medical research is not contributing to research programs of the Division to the degree that it should and is not represented on certain committees where there must be close interrelationship between human and veterinary medicine. Such representation would place veterinary medicine in a better position to qualify for grants in aid, fellowships, etc., and to conduct research in related fields in which it is competent.

s/H. D. BERGMAN

Representative to National Society for Medical Research

The annual meeting of the Board of Directors of the National Society for Medical Research was held in Chicago, Feb. 6, 1949, President A. J. Carlson presiding. Founded in 1946 "to advance and encourage research in biology, medicine, dentistry, pharmacy and veterinary medicine and to inform the public regarding the necessity, humane character and accomplishments of animal experimentation," the society has made real strides in its program. Mr. Ralph A. Rohweder, executive secretary, reported, among other things, a thirty-fold increase in newspaper publicity stating the facts of animal experimentation, and pointed out that much of this increase was due to release of suitable stories at the source; *i.e.*, the universities and scientific institutions at which medical research developments are made.

A number of magazine articles on the benefits of animal research to the public have also appeared in national publications during the past year and more are scheduled. A survey, as yet incomplete, is also encouraging, since it indicates no substantial misunderstanding by the public of animal experimentation and that a big majority of people clearly favor it.

Support for the work of the society comes largely from universities, medical schools, and research institutions, but the active interest and support of veterinary organizations such as the AVMA and veterinary institutions in general is also desirable and is increasing. Some of the studies and projects stimulated or sponsored by the society which have special veterinary interest include improved cage construction, better feeding methods, and the training of animal caretakers.

The society publishes a bimonthly bulletin "to furnish physicians, veterinarians, dentists, biologic scientists, and friends of biologic research with information designed to overcome antivivisection obstructionism and to promote public understanding of the methods and requirements of progress in the life sciences." Veterinary institutions and those engaged in veterinary research may obtain the bulletin and other materials prepared by the society by writing to its office at 25 East Washington St., Chicago 2, Ill. The March-April issue of the bulletin carried a cover picture of veterinary surgery taken at the small-animal clinic of one of the veterinary schools. Editorial comment on the picture stated that "while most medical research is conducted for the benefit of man, the rewards for the animals themselves are very great. Especially is this true of the dog where almost all that is known about its physiology, pathology, and diseases was discovered through studies conducted to save human life." This is obviously an overstatement in view of the many significant findings of veterinary investigators and clinicians in recent years, but it does, perhaps, show that much that has been learned of canine physiology and pathology in medical research laboratories remains untranslated in terms of everyday canine medicine and surgery. This would seem to be something well worth collaborative study and interpretation by medical and veterinary research workers and veterinary clinicians.

s/J. G. HARDENBERGH

Representative to the U.S. Pharmacopoeial Convention

The U. S. Pharmacopoeial Convention meets decennially to set in motion the work of revising the Pharmacopoeia during the ensuing decade.

Delegates nominate and elect the officers of the convention and a board of trustees to manage the administrative, legal, and financial matters. A committee of revision, to consist of 20 medical members and 40 members from the pharmaceutical and allied professions, is elected. It is incumbent, therefore, that the delegates be carefully chosen and well versed in the problems of the Pharmacopoeial Convention and that they be active members of the associations which they represent.

Changes in the Constitution and By-Laws which will be up for adoption at the 1950 meeting will condense the convention by limiting each eligible organization to one delegate in future meetings.

A new method of nominating and electing the Committee of Revision will become operative at the 1950 meeting. A nominating committee will prepare forms upon which organizations, such as the AVMA, will be asked to submit names for consideration by the committee for nomination to the revision committee. The form will call for information regarding the affiliations, academic and professional backgrounds, and specific qualifications for membership on the General Committee of Revision.

The recommendations submitted will be given consideration by the Nominating Committee, and they will select at least two nominees for each category. The delegates to the Convention will elect one of these by mailed ballot about Aug. 1, 1949.

The changes already made and those yet to be

adopted will materially strengthen the entire structure of the convention.

s/H. E. MOSKEY

Representative to the Interdepartmental Committee on Trade Names for Insecticides

The representative to this committee attended the fall meeting of the Agricultural Insecticide and Fungicide Association at Spring Lake, N. J. The report of this meeting was published in the December, 1948, JOURNAL.

The detailed work of this committee has been conducted by correspondence. Trade names have been considered and approved by the committee for the following two chemicals: 1, 4, 5, 6, 7, 8, 8-heptachloro-3a, 4, 7, 7a-tetrahydro-4, 7-methanoindene to be known by the common name heptachlor; and chlorinated camphene having a chlorine content of 67 per cent to 69 per cent to be known by the common name toxaphene. Names for other insecticides are under consideration at the present time.

s/ROGER P. LINK

Representative to the National Brucellosis Committee

Regional brucellosis conferences have been held in various parts of the country during recent years. Invariably, these conferences, which were sponsored by the U.S. Bureau of Animal Industry, have emphasized the need for a national brucellosis committee. Such a committee would be a guiding agency toward general acceptance of the facts known about the disease and toward formulation of a more uniform set of regulations covering the movement of livestock and leading, eventually, to eradication of brucellosis.

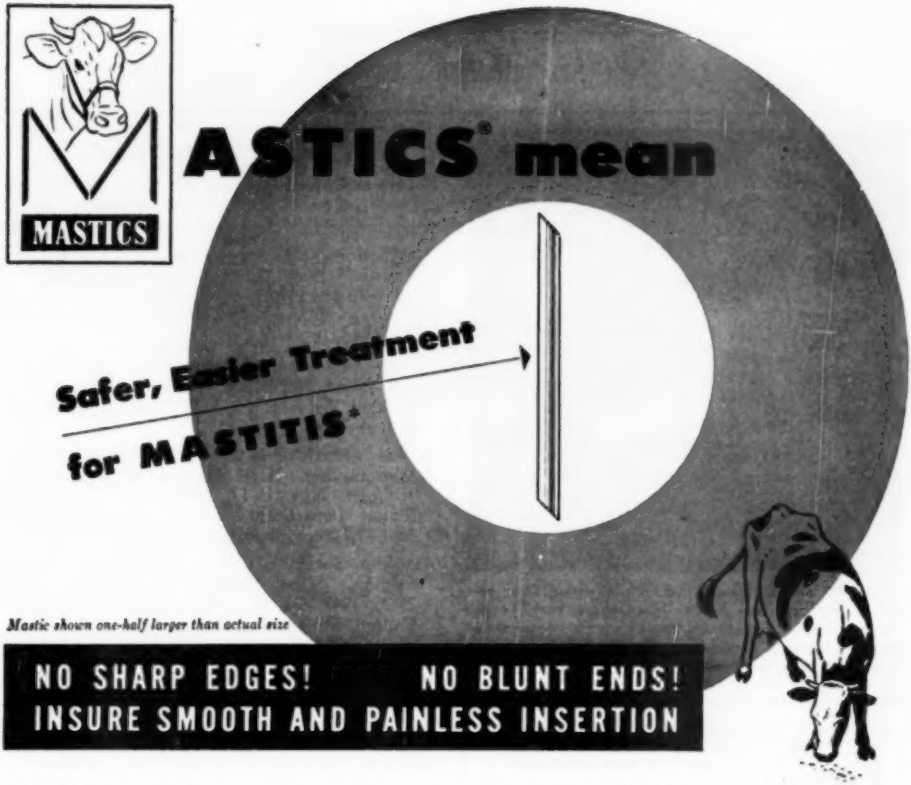
A national conference was held in Washington, D. C., March 15, 1949. This conference elected Mr. W. D. Knox, associate editor, Hoard's Dairyman, Fort Atkinson, Wis., as temporary secretary. A list was made of 20 organizations interested in brucellosis control and eradication. The secretary was authorized to invite each organization to appoint a delegate and an alternate to meet and organize a permanent National Brucellosis Committee. This group of delegates met in Chicago on May 10, 1949. Mr. C. K. Tomson, secretary, American Shorthorn Breeders' Association, Chicago, Ill., was elected chairman, and Mr. Knox was continued as secretary.

Although the meeting was unable to agree on a permanent organization, it did discuss the 4-plan program adopted by the U.S. Livestock Sanitary Association, and "What is Known About Brucellosis" from the same Association. The meeting authorized appointment of subcommittees to prepare reports for presentation at a meeting in Columbus, Ohio, Oct. 11, 1949.

The AVMA has been officially represented at all recent meetings. Your representative has been guided by the reports of committees in past years, and by discusssions of boards, councils, and committees of the AVMA. Attention has been called to the fact that some 80 per cent of all cattle herds, and some 95 per cent of individuals in these herds, are already free from brucellosis. One of the primary considerations, therefore, must be protection of these clean animals. The situation among pig breeders is even more favorable.

Your representative has also pointed out that the regional conferences have repeatedly recognized the practicing veterinarian as the key figure in any disease-eradication program. President L. M. Hurt has appointed a committee of practitioners to establish a basis upon which a brucellosis program can be supported without undue interference with the normal conduct of veterinary practice. The report of this committee (*see* JOURNAL, April, 1949, p. 261) provides a place to start. This committee is planning a meeting of practitioners from all areas of the United States, to be held in connection with the Annual Convention in Detroit July 11 to 14.

s/R. C. KLUSSENDORF



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COMING MEETINGS

Notices of Coming Meetings must be received by 8th of month preceding date of issue

Association of Military Surgeons. Annual convention. Hotel Statler, Washington, D. C., Nov. 10-12, 1949. A veterinary panel will be presented from 3:30 to 5:00 p.m. on Friday, November 11.

Midwest Small Animal Association. Annual meeting. Hotel Burlington, Burlington, Iowa, Nov. 16, 1949. W. H. Riser, 5335 Touhy Ave., Skokie, Ill., secretary.

Illinois Veterinarians and Public Health Officers. Joint meeting. Hotel Abraham Lincoln, Springfield, Ill., Nov. 16-17, 1949. L. R. Davenport, Illinois Department of Public Health, Springfield, Ill., consultant in veterinary medicine.

American Society of Animal Production. Annual meeting. Sherman Hotel, Chicago, Ill., Nov. 25-26, 1949. H. M. Briggs, Oklahoma A. & M. College, Stillwater, Okla., secretary.

Conference of Research Workers in Veterinary Medicine in North America. Annual meeting. Palmer House, Chicago, Ill., Nov. 28, 1949. W. H. Feldman, Mayo Clinic, Rochester, Minn., secretary.

Kentucky short course for graduate veterinarians. Animal Pathology Department, Kentucky Experiment Station, University of Kentucky, Lexington, Ky., Dec. 7-8, 1949. Ross Brown, University of Kentucky, Lexington, Ky., secretary.

Nebraska State Veterinary Medical Association Annual meeting. Cornhusker Hotel, Lincoln, Neb., Dec. 7-9, 1949. L. V. Skidmore, College of Agriculture, Lincoln 1, Neb., secretary.

American Association for the Advancement of Science. Annual meeting. Penn Zone Hotels, New York, N. Y., Dec. 26-31, 1949. Raymond L. Taylor, 1515 Massachusetts Ave., N. W. Washington 5, D. C., assistant administrative secretary.

Ohio State Veterinary Medical Association. Annual meeting. The Deshler-Wallick Hotel, Columbus, Ohio, Jan. 4-6, 1950. F. J. Kingma, 121 E. Weber Rd., Columbus 2, Ohio, secretary.

Arizona Veterinary Medical Association. Annual meeting. Hotel Adams, Phoenix, Ariz., Jan. 5-6, 1950. Robert E. McComb, Jr., 21 W. Alta Vista Rd., Phoenix, Ariz., resident secretary.

New York State Veterinary College. Annual conference for veterinarians. Jan. 4-6, 1950. W. A. Hagan, Cornell University, Ithaca, N. Y., dean.

(Continued on page 30)



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(Continued from page 28)

Oklahoma Veterinary Medical Association. Annual meeting. Skirvin Tower Hotel, Oklahoma City, Okla., Jan. 9-10, 1950. Lewis H. Moe, Stillwater, Okla., secretary.

California State Veterinary Medical Association. Annual midwinter conference. San Luis Obispo, Calif., Jan. 9-11, 1950. Charles S. Travers, 16th and Mission Sts., San Francisco, Calif., executive secretary.

Indiana Veterinary Medical Association. Annual meeting. Severin Hotel, Indianapolis, Ind., Jan. 12-14, 1950. W. W. Garverick, Zionsville, Ind., secretary.

Tri-State (Arkansas, Mississippi, Tennessee) Veterinary Conference. Peabody Hotel, Memphis, Tenn., Jan. 16-17, 1950. H. W. Nance, Lawrenceburg, Tenn., secretary.

Intermountain Veterinary Medical Association. Annual meeting. Newhouse Hotel, Salt Lake City, Utah, Jan. 16-18, 1950. M. L. Miner, Utah State Agricultural College, Logan, Utah, secretary.

Iowa Veterinary Medical Association. Annual meeting. Fort Des Moines Hotel, Des Moines, Iowa, Jan. 17-19, 1950. F. B. Young, Waukee, Iowa, secretary.

North Carolina State College of Agriculture. Annual veterinary conference. State College of Agriculture, Raleigh, Jan. 24-27, 1950. C. D. Grinnells, State College of Agriculture, Raleigh, N. Car., chairman.

Michigan State College, School of Veterinary Medicine. Annual postgraduate conference for veterinarians. Michigan State College, Jan. 25-26, 1950. C. S. Bryan, Michigan State College, East Lansing, Mich., dean.

Illinois State Veterinary Medical Association. Annual meeting. Pere Marquette Hotel, Peoria, Ill., Feb. 1-3, 1950. A. G. Misener, 6448 Clark St., Chicago 26, Ill., secretary.

• • •

Regularly Scheduled Meetings

Bay Counties Veterinary Medical Association, the second Tuesday of each month. George E. Martin, 530 Stockton Ave., San José, Calif., secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Thomas Eville, Route 1, Box 136H, Fresno, Calif., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

East Bay Veterinary Medical Association, bimonthly, the fourth Wednesday. O. A. Soave, 5666 Telegraph, Oakland, Calif., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

(Continued on page 32)

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"A complete lactation experiment with fifteen Holstein cows showed the nitrogen from urea as well utilized as that from linseed meal . . . when urea furnished not more than one-third of the total nitrogen intake."

Rupel, Bohstedt & Hart, University of Wisconsin, Jour. of Dairy Science, Vol. 26, Aug., 1943.

"Urea caused a prominent increase in the digestibility of protein (by sheep) . . . was apparently well utilized, being added to a ration already containing 12.9% protein."

Swift et al, Pennsylvania State College, Jour. of Animal Science, Vol. 6, Nov., 1947.

"Nitrogen retention by steers and lambs . . . was increased by the additional nitrogen supplied by urea . . . Feeding the 25% urea-nitrogen supplement . . . on alternate days as compared to daily and twice daily, had no effect on urea utilization by steers."

Dinning, Briggs and Gallup, Oklahoma Agricultural Exp. Sta., Jour. of Animal Science, Vol. 8, Feb., 1949.

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(Continued from page 30)

Greater St. Louis Veterinary Medical Association. Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Wednesday of even-numbered months. R. A. Case, 400 S. Garden St., Peoria, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, the third Tuesday of each month. R. S. Wann, Wingate, Ind., secretary.

Jefferson County Veterinary Society, Louisville, Ky., the first Wednesday evening of each month. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

Keystone Veterinary Medical Association. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., the fourth Wednesday of each month. Raymond C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

Massachusetts Veterinary Association. Hotel Statler, Boston, Mass., the fourth Wednesday of each month. C. L. Blakely, Angell Memorial Animal Hospital, 180 Longwood Ave., Boston, Mass., secretary-treasurer.

Michiana Veterinary Medical Association. Hotel Elkhart, Elkhart, Ind., 7:00 p.m., the second Thursday of each month. R. W. Worley, 3224 Lincoln Way West, South Bend, Ind., secretary.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.

New York City Veterinary Medical Association. Hotel Pennsylvania, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

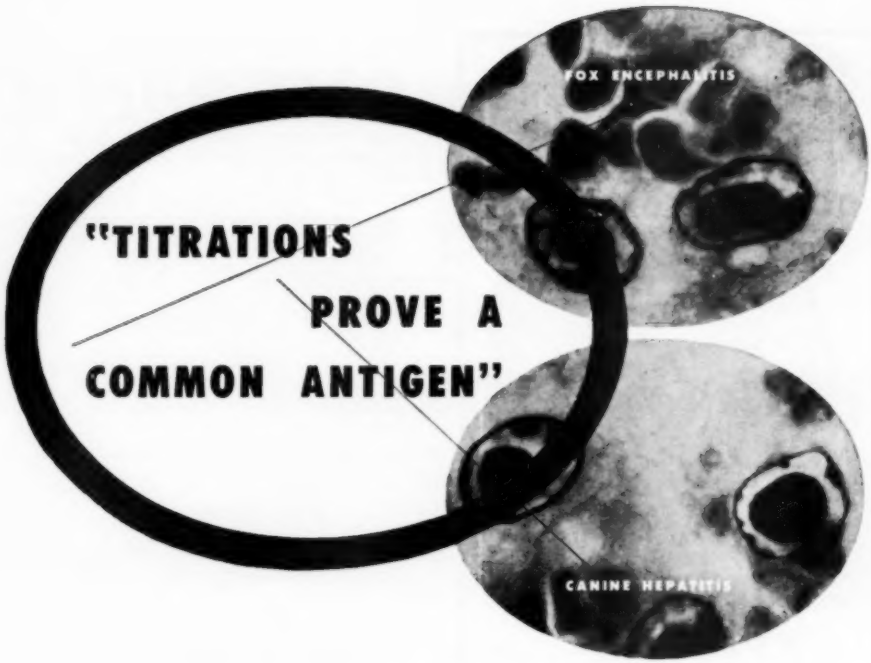
Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. I. N. Bohlender, Box 588, Turlock, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. James R. Ketchersid, 666 East Highland Avenue, San Bernardino, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. E. W. Paul, Box 866, Redwood City, Calif., secretary.

Redwood Empire Veterinary Medical Associa-

(Continued on page 34)



Results of recently conducted virus titrations* have corroborated the observations of Rubarth; i.e., fox encephalitis and canine hepatitis have common antigenic properties. They are identical morphologically, in staining characteristics and cannot be differentiated microscopically.

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(*Continued from page 32*)

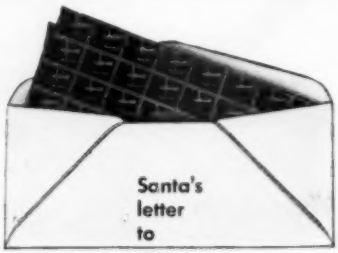
tion, the second Tuesday of every other month. Charles D. Stafford, Novato, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the fourth Friday of each month. R. C. Goulding, 11511 Capitol Avenue, Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. R. J. McFarland, 3621 Jewell St., San Diego 9, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. D. H. McDole, 8674 Melrose Ave., Los Angeles 46, secretary.

South Florida Veterinary Society, the third Tuesday of each month, 8:00 p.m., at the Peckway Skeet Club. Robert P. Knowles, 2936 N.W. 17th Ave., Miami, Fla., secretary.



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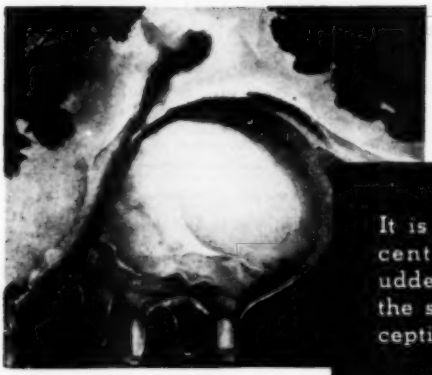
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JOURNAL of the American Veterinary Medical Association

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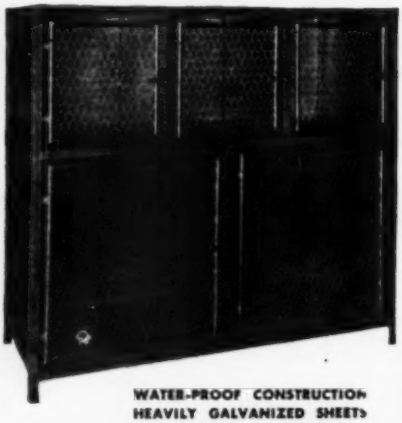
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1. Foley, E. J.; Stults, A. W.; Lee, S. W., and Byrne, J. V.: Am. J. Vet. Research 10: 66 (Jan.) 1949.

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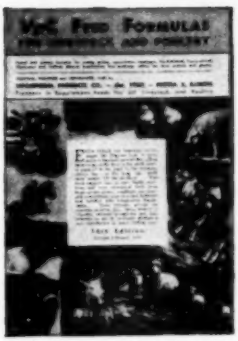
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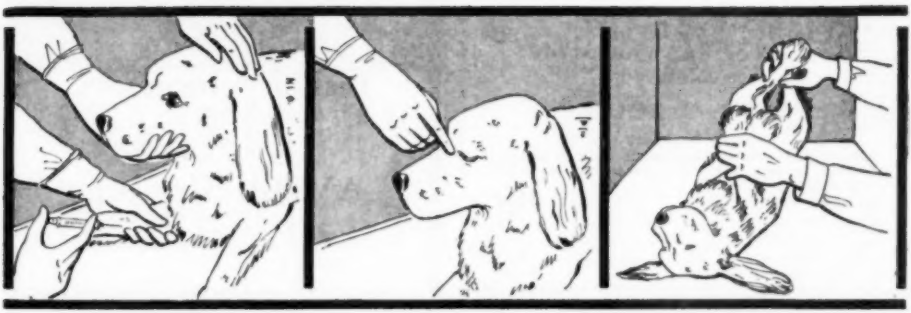
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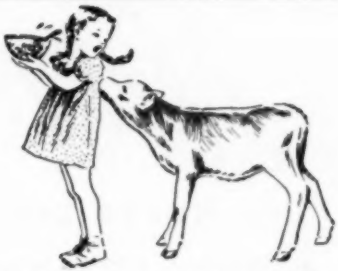
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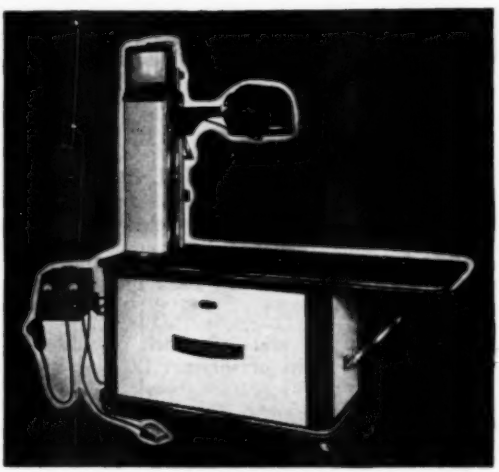
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C. G. P. REINFORCED

It contains, in addition—balanced amounts of

Calcium, Magnesium and Dextrose.

The simultaneous administration of medicinal amounts of these four important ingredients has proved its dependability in the treatment of MILK FEVER and those common COMPLICATIONS which often cause delayed recovery or relapse.

C.G.P. Reinforced is free of body-foreign stabilizers and will not precipitate under extreme temperature or long storage.



Supplied in:

Ctn. 6-500 cc. puncture-sealed bottles	$4.30
Ctn. 12-500 cc. puncture-sealed bottles	8.40

Haver-Glover Laboratories

"Coast to Coast Service" *Home Office—Kansas City 10, Mo.*

Canine Distemper

VACCINE (Intradermal)

Over one-quarter million doses of Canine Distemper Vaccine (Intradermal) have been administered within the first full year of its use. Satisfaction (within the profession) has reached an unbelievable high of over 99% of the users, which is the best measure of its efficiency.

Intradermal vaccine is SAFE. It is incapable of producing distemper in animals during the immunizing period, or of producing distemper in animals coming in contact with those being immunized.

ANTI-SERUM

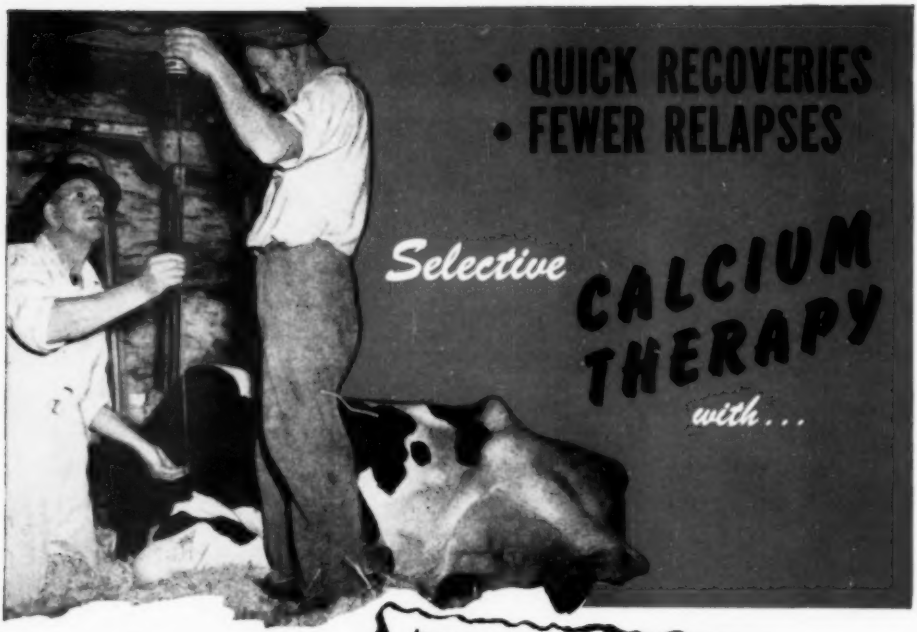
Lockhart's Anti-Canine Distemper Serum is the therapeutic agent of choice, and, when given in usual doses ,affords adequate passive immunity to meet the demands of discriminating veterinarians.

Ashe Lockhart, Inc., has had longer experience in producing Anti-Canine Distemper Serum than any competitive firm.

ASHE LOCKHART, INC.

"Producers of Better Biologics for Graduate Veterinarians."

800 Woodswether Road **Kansas City 6, Missouri**



SOLD TO VETERINARIANS ONLY

Important Advantage: Jen-Sal calcium solutions can be given safely by intramuscular, subcutaneous, intraperitoneal and intravenous injection . . . due to an exclusive Jen-Sal process which effectively controls the content of irritating ionized calcium.

Jen-Sal

C·B·C



Product of choice in uncomplicated milk fever, acute rachitis or spasmophilia and eclampsia. Also in collateral treatment of the dermatoses, wasp and bee stings and as an antidote for DDT poisoning.

C.B.G. contains 25.7% Calcium Borogluconate made from organic source calcium under U. S. Patent.

500 cc. Bottles: 12—$8.00

Jen-Sal

D·C·M



Product of choice in complicated milk fever, grass tetany, railroad sickness, wheat poisoning, acetonemia, forage poisonings, toxemia and in other syndromes with low blood levels of magnesium as well as calcium.

D.C.M. contains 18% Calcium Borogluconate, 6.5% Magnesium Borogluconate and 14% Dextrose with traces of phosphates.

500 cc. Bottles: 12—$8.40

CP-1

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